# The Effect of Interactivity on Online Consumer Response: An Investigation into the UK Car Brand Websites

## Thesis

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# The Effect of Interactivity on Online Consumer Response: An Investigation into the UK Car Brand Websites

A thesis submitted for the degree of Doctor of Philosophy (PhD) in Management

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# ABSTRACT

The research presented in this thesis is concerned with the effects of interactivity on consumer responses to brands and their web sites within the context of consumer-brand interactions online. More specifically, this research aimed to determine:

a) whether brands are perceived differently by consumers online versus offline,

b) whether the interactivity of a brand's web site influenced consumer perceptions and attitudes to that brand and its web site, and,

c) how brands add value to their web sites, and what effect the concept of value has in consumer-brand interactions online.

To answer these research questions, a two-phase study was conducted. In the first phase, exploratory interviews with Internet and brand experts were conducted, and interview transcripts were analysed under Grounded Theory methodology guidelines. This exploratory phase allowed this researcher to develop an original conceptual model, grounded in empirical data and supported by extant literature. In the second phase of the study, the propositions emerging from the conceptual model were tested using data obtained from controlled laboratory experiments conducted with seventy-eight participants from the Open University staff and research students. The data was statistically analysed and substantial support was found for the model and the central proposition that interactivity of a web site would have a significant effect on how consumers evaluate, perceive and develop attitudes to the web site in question.

This thesis helps fill a gap in academic literature in understanding the role of interactivity in consumer behaviour online. It also provides managerial contributions with the interactive features assessment tool, identification of the discrepancy between structural and perceived interactivity, and specific findings on consumer response variables, as these help managers better understand consumers' interactions with their web sites, and develop online branding strategies utilising the interactivity of the online medium and Internet technologies to better effect.

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Furthermore, I would like to thank all the Internet and brand experts whom I interviewed in the exploratory phase of this study for their time and ideas. I also extend a very special thanks to all the OU staff and research students who volunteered and took part in the web site browsing experiments.

I greatly appreciate the funding, support and resources extended to me by the Open University Business School throughout my studentship.

Finally, I would like to thank my husband Adam, and my son Alexander for their support, understanding and patience throughout this very special journey. Adam's love and encouragement, and Alexander's smile; our happiness in the good times and our determination and unity through the bad, made it possible for me to reach the end of this challenging but wonderful experience.

Oya Discombe

16th December 2004

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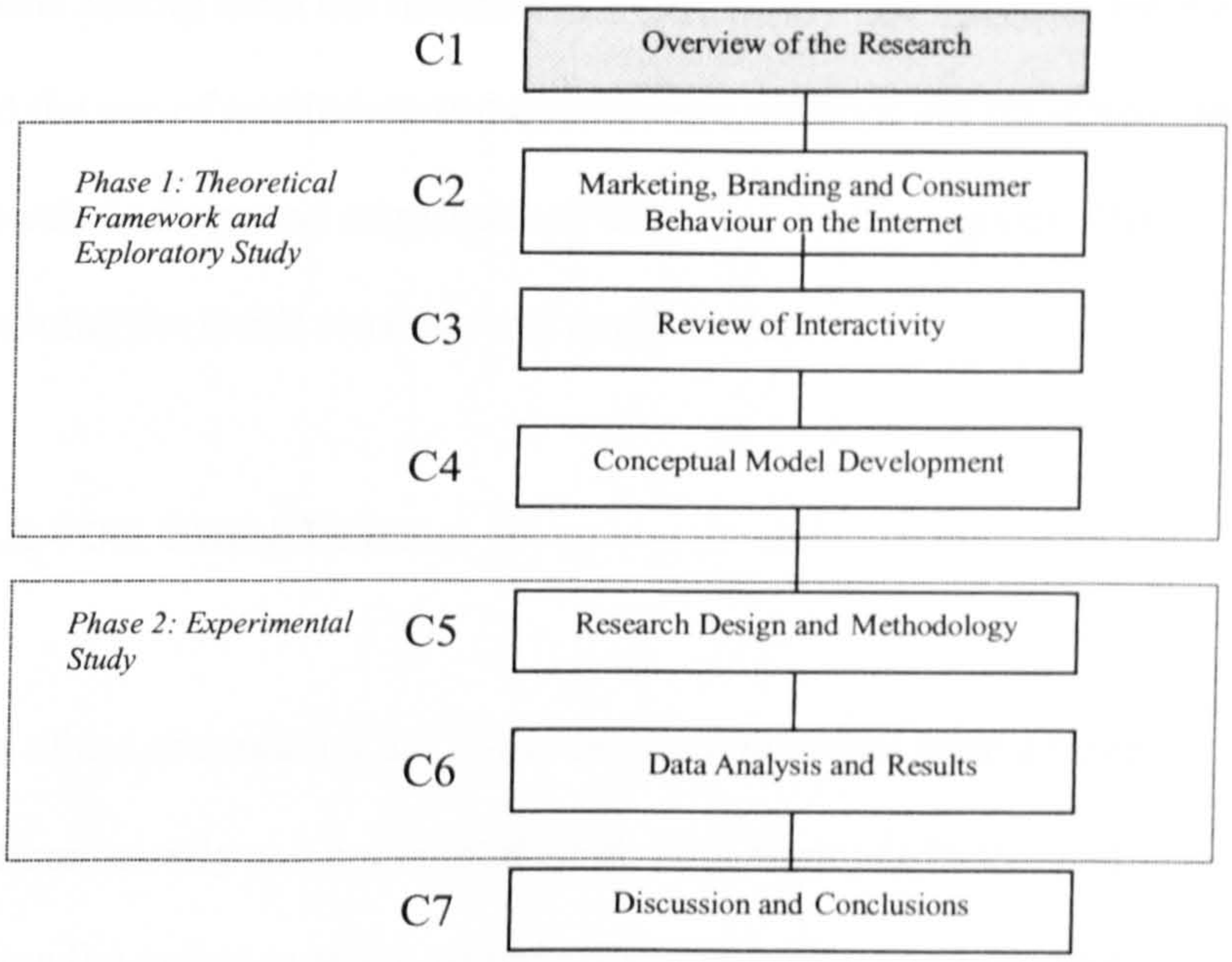
# CHAPTER 1. OVERVIEW OF THE RESEARCH




## 1.1 INTRODUCTION

The research presented in this thesis is concerned with the effects of web site interactivity on online consumer response. There were two phases to the overall study. During the first phase, exploratory interviews were conducted with key opinion leaders and Internet experts in order to narrow down the broad research interest of how brands can use the Internet as a new communications medium. Supported by an extensive multidisciplinary literature review of marketing, advertising, branding, Internet marketing and retailing, and media and communications, a theoretical framework of consumer-brand interaction on the Internet was developed. The second phase of the study was concerned with empirically testing this conceptual model and related hypotheses.

To set the scene for the subsequent literature review and analysis, this chapter begins with an introductory discussion of the relevant background areas, and the need for

research into interactivity and online consumer behaviour, followed by an overview of the research questions arising from the two phases of the study. The rationale for the research design and the use of qualitative and quantitative methods are presented next. A summary of research findings and contributions of the research are given. The chapter ends by outlining the thesis structure and organisation.

## 1.2 RATIONALE FOR THE STUDY

Since the early days of the commercial use of the Internet, there has been a large amount of contributions, mostly at a conceptual level, both from academics and practitioners, into how the online medium would affect marketing and branding paradigms and consumer behaviour. Most authors argued that the unique and revolutionary nature of the Internet would contribute to a paradigm shift in marketing, where the interactive possibilities of this new medium allow the facilitation of 'one-to-many', and 'many-to-many' communication models, product and web site customisation, and real-time information, allowing consumers to communicate with companies, and with other consumers in a inherently global, convenient and accessible 'marketspace'. Although the concept of interactivity is acknowledged generally as the differentiating quality of the online medium, there is no consensus on its conceptual or operational definition. This thesis addresses the gap in literature by providing a unified definition of interactivity, and contributes to limited research on interactivity by empirically measuring this construct and its effects on consumer perceptions and attitudes online.

Jacoby *et al.* (1998), following their review of consumer behaviour research literature for the period 1993-1996, suggested that web site navigation would be a natural area for future research. Although web site navigation and consumers' interaction or response to

web sites have been researched since then, the actual body of material produced has not been substantial, or in consensus in terms of generating new models and testing them. These studies have been highly fragmented, without being grounded in established conceptual frameworks. All Internet-related research was clustered under the same broad umbrella; and often, diverse fields of research were published within one 'special issue' of marketing and management journals.[1] Articles in these special issues covered diverse areas such as online shopping, web metrics, content analyses of web sites, classifications of business models, privacy, security and regulation issues, banner advertising, search engines, shopping bots, Internet-specific marketing research methods, supply chain management; and the unit of analyses included companies, web pages, computers or consumers.

Different authors attempted to fit or adapt different existing theoretical models and instruments from the literature to the Internet context; e.g. Technology Acceptance Model (TAM) from information systems literature (Davis 1989, 1993; Liu *et al.* 2003; Keen *et al.* 2004; Monsuwe *et al.* 2004), Diffusion of Innovations from communications literature (Rogers 1986, 1995; Ha and Stoel 2004; Li 2004), classical models of consumer decision-making process (Engel *et al.* 1995; Peppard and Butler 1998; Huarng and Christopher 2003), the well-known SERVQUAL instrument (Parasuraman *et al.* 1988; Chaffey and Edgar 2000; Kaynama and Black 2000; Barnes and Vidgen 2001; Long and McMellon 2004), and, Uses and Gratifications Theory from media and

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[1] Please see the following special issues: "Marketing on the web – behavioural, strategy and practices and public policy". *Journal of Business Research*, Vol.57, Issue:7 (2004); "Consumers in Cyberspace". *Journal of Consumer Psychology*, Vol.13, Issues 1 & 2 (2003); "Issues in Internet Marketing". *Marketing Intelligence & Planning*, Vol.21, No.2 (2003); "From P-Services to E-Services". *International Journal of Service Industry Management*, Vol.14, No.5 (2003); "Marketing to and Serving Customers Through the Internet: Conceptual Frameworks, Practical Insights, and Research Directions". *Journal of the Academy of Marketing Science*, Vol. 30 Issue 4 (2002); "Emerging issues in electronic marketing: thinking outside the square". *Journal of Business Research*, Vol.55, Issue: 8 (2002); "Research on e-service". *International Journal of Service Industry Management*, Vol.13, No.5 (2002); "The Revolution will not be televised: Special Issue on Marketing Science and the Internet". *Marketing Science*, Vol. 19, No.1 (2000); "Marketing in cyberspace". *European Journal of Marketing*, Vol.32, No.7/8 (1998); "The Internet and international marketing". *International Marketing Review*, Vol.14, No.5 (1997).

advertising literature (Lazarsfeld 1940; Herzog 1944; Eighmey 1997; Eighmey and McCord 1998; Korgaonkar and Wolin 1999; Joines *et al.* 2003; Stafford *et al.* 2004).

It has been suggested early on in literature (Peppard and Butler 1998) that an appropriate dedicated model of consumer buying behaviour needed to be built as the Internet develops further. Recent literature emphasises that substantive theory to guide web-based marketing communications, and research on what makes a web site effective and appealing to customers is still in its infancy, and that little is known as to how positive consumer experiences would translate into positive marketing outcomes (Luna *et al.* 2003; Putrevu and Lord 2003).

A recent exhaustive literature review on Internet marketing research (Ngai 2003) concluded that an increasing volume of Internet marketing research has been conducted in a diverse range of areas. Another recent review on consumer behaviour online (Monsuwe *et al.* 2004) similarly concluded that research in this area is fragmented; and that there is a clear need for developing and empirically testing conceptual models in consumer behaviour online. This thesis attempts to address this gap in literature by presenting an original conceptual model of consumer-brand interactions online, grounded not only in the literature but also in empirical qualitative data, which was tested with a different set of empirical, quantitative data. Substantive support was found for the validity of this model, and specific contributions to literature were made, which will be summarised further on in this chapter.

## 1.3 SCOPE OF THIS RESEARCH

The first phase of this study was exploratory in nature and aimed to develop a grounded theory of consumer-brand interactions on the Internet. Hence, exploratory interviews

were conducted with fifteen Internet and brand experts, where the unit of analysis was the individual expert. Supported by the analysis of these interview transcripts under the grounded theory methodology guidelines, as well as extant literature at that time, a conceptual model and related hypotheses were proposed.

The second phase of the study tested this model and hypotheses with controlled, laboratory-based experiments in a business-to-consumer setting conducted with volunteer subjects recruited from the Open University staff and research students. The responses given by these seventy-eight subjects in the form of questionnaires were the units of analysis for the second part of the study. The scales in these questionnaires measured the specific consumer-based perceptions and attitudes relating to their interactions with a specific web site. The web sites used in these experiments were of the UK web sites of Vauxhall, Ford and Volkswagen brands. These web sites were chosen after a content analysis of all UK automotive web sites in terms of their interactive features, which represented high, medium and low levels of web site interactivity respectively. The automotive industry was chosen mainly due to the global nature of this industry and consumers' high familiarity with car brands.

## 1.4 RESEARCH QUESTIONS

In the first phase of this study, exploratory interviews were conducted with Internet and brand experts to see how the development of the Internet as a new communications medium affected brands and brand management strategies. The research questions for the exploratory part of the study were based on the initial literature search conducted in autumn 1998 from both academic and practitioner sources. The origins of these questions will be explained in the next chapter; and the details can be found in the topic list for interviews in Appendix 1a.

During the exploratory study, in investigating the changes to the branding process online and the attributes of the Internet paradigm, the concept of interactivity emerged as the most important factor that differentiates the online medium from traditional marketing channels. The qualitative data collected from depth interviews with Internet experts helped focus the study on the most relevant issues, and the research questions were refined as follows:

- Are brands perceived differently by consumers online versus offline?
- What is the effect of the interactivity of a brand's web site on key consumer responses to that brand and its web site?
- How do brands add value to their web sites and what effect does the concept of 'value' have in consumer-brand interactions on the Internet?

Based on these research questions, a theoretical framework of consumer-brand interaction on the Internet was proposed, where interactivity would affect perceptions of brand personality, involvement, control, expectations and value of the web site, as well as attitude towards the web site. The relationships between the constructs in the model were detailed as individual propositions. Next, this model was operationalised with a choice of reliable and valid scales from the existing literature to measure each variable as an indicator of the conceptual construct. The hypotheses developed from the operational model were tested via laboratory based, controlled and randomised experiments, with pre-test / post-test design, using three equal sized samples under three experimental conditions.

## 1.5 OVERVIEW OF METHODOLOGY

In this thesis, following Churchill's (1995) advice, a combination of exploratory, descriptive and causal research designs were adopted. This approach enabled the development of an original model of consumer-brand interaction on the Internet grounded in empirical data as well as the literature. It also allowed postulating certain relationships within the model and testing the hypotheses that suggested a causal relationship between interactivity and consumer perceptions and attitudes.

Bird and Hammersley (1996) point to the growing trend among social researchers towards combining qualitative and quantitative methods in order to capitalise on the benefits of both. Furthermore, Hammersley (1996) reminds that "methodological eclecticism", where quantitative and qualitative methods are combined in the same study, has a long history in the research literature. In the present study, this methodological eclecticism took the form of 'facilitation', where the exploratory interviews enabled the development of relevant hypotheses, which were subsequently tested via the computer laboratory experiments and analysed using quantitative methods.

At the onset of this study, the initial research question of how brands extend onto the Internet as an additional communications channel was of great interest, albeit a very broad and unrefined one. An initial literature search on this subject showed that this was an emerging area of both academic and practitioner interest, however, without any solid grounding. Hence, an exploratory design early into the study was the logical choice in order to narrow down the area of study. Due to the emerging nature of the field, the

exploratory study was designed within the guidelines of 'grounded theory' methodology (Glaser and Strauss 1967).

The results from this exploratory study supported by a broad literature review into branding theory, Internet marketing, consumer behaviour and computer-mediated communications, enabled this researcher to propose a conceptual model of how consumers interact with brand web sites on the Internet. The core construct within the model is 'interactivity', which is a broad concept without a clear-cut definition in the literature. An exhaustive review of the literature on interactivity from various literature streams pointed to the viability of two related but separate indicators for operationalising this construct. The first indicator relates to 'structural interactivity', assessed from an objective point of view as the presence or absence of interactive features on a web site, determined via content analysis of all brand web sites within the automotive industry conducted by this researcher. The second indicator, generally named 'perceived interactivity' in the literature, was a 10-item Likert-type consumer perception scale, taken from Wu's (1999) original work, which represented the subjective assessment of interactivity from the consumers' point of view.

The dependent variables in the model emerged from the findings of the exploratory study, supported by the existing literature. These variables were the "excitement dimension of brand personality", "involvement with the brand", "attitude towards the web site", "expectations", "perceived control" and "perceived value". As the model suggested specific causal relationships between the independent and dependent variables, the logical choice of design was experimental. Experiments are considered to be more powerful than descriptive designs, i.e. surveys, in uncovering causal relationships among variables because they involve principles of control, randomisation and comparison (Spector 1993; Churchill 1995). Hence, controlled laboratory

experiments were designed and carried out with seventy-eight participants randomly allocated to three different brand web site interactions as the experimental treatments. Data was collected via questionnaires administered during the participants' interaction with these web sites. The results were analysed with the statistical package, SPSS for Windows version 11.5, using both parametric and non-parametric methods. Chapter 6 gives details of these statistical analyses, and the next section outlines the overview of research findings.

## 1.6 OVERVIEW OF RESEARCH FINDINGS

The concept of interactivity is the underlying theme throughout this thesis, and it is the core construct in the conceptual model of consumer-brand interactions online. The lack of unified definitions and measures of interactivity in literature will be discussed extensively in Chapters 3 and 5. Following a thorough review, it was decided to include two separate indicators of interactivity in this study. Although a convergence between these two indicators was expected, it was not entirely unexpected that this did not happen, as the literature points out that a significant correlation between structural and perceived interactivity does not always exist (McMillan 2000a, 2000b; Wu 2000; Yin 2002). Accordingly, the findings from this study suggested that the structural interactivity of a web site did not necessarily correctly predict how consumers would perceive that interactivity. In this study, the web site with the highest level of structural interactivity was perceived by respondents as having the lowest level of interactivity. The web site with a medium level of structural interactivity was perceived as being the most interactive, after controlling for the biasing effects of prior brand attitudes. Quotes from respondents showed that the web site with the highest number of interactive features was perceived as being over complicated. This dilemma of the diminishing returns effect was pointed out in the literature (Fortin 1997; Bruner II and Kumar 2000;

Stevenson *et al.* 2000; Rosen and Purinton 2004). Similarly, this study supported the view that having too many interactive features could have a detrimental effect on consumers' perceptions and attitudes, and that 'perceived interactivity' could be a better predictor of consumer response variables than structural interactivity .

Another important implication that emerged from the data was that the inherent qualities of the Internet medium itself might have a direct influence on how exciting consumers find a brand and how involved they feel with it online. There was strong empirical support to suggest that consumers are likely to find a brand more exciting online than offline and they get more involved with the brand after they interact with its web site. This finding is very important theoretically, as it indicates the strong influence of the online medium on consumer perceptions. It provides empirical evidence for the extensive conceptual arguments in the literature as presented in Chapter 2, regarding the paradigm shift the Internet initiates. If brands can influence consumer perceptions to such a degree by simply being online, then brand owners should exercise great caution in their online strategies, as they are in uncharted territory with less control over their brands and a balance of power generally shifting towards the consumer.

Overall, empirical data from the experiments using three car brand web sites as stimuli found strong support for the conceptual model developed in the first phase of this study, using the perceived interactivity variable as the indicator of web site interactivity. This model tested for a positive effect of perceived interactivity on consumer response variables of the excitement dimension of brand personality, consumers' involvement with the brand, consumers' perceived control of their interaction with the brand's web site, their expectations from that web site, the perceived value of the web site and their attitudes towards that web site. Full support was found for the positive effect of perceived interactivity on these consumer response variables. In other words, consumers

who find a brand's web site highly interactive are also likely to find that brand more exciting and involving online; and they are likely to feel more in control of their interaction with the web site and that their expectations have been met or exceeded. As a result, they are likely to perceive high value from that web site and develop a more favourable attitude towards the web site. These findings are important as they help fill a gap in academic literature in understanding the role of interactivity in consumer behaviour online; and in practice, helping managers better understand consumers' interactions with their web site, and develop online branding strategies utilising the interactivity of the online medium and Internet technologies to better effect.

## 1.7 CONTRIBUTIONS OF THIS RESEARCH

Theoretical, empirical, methodological and managerial contributions of this research can be outlined as follows. Details of each contribution will be given in the final chapter.

- Development and validation of an original model of consumer-brand interactions on the Internet grounded in a qualitative exploratory study as well as the extant literature.
- Integrating knowledge from a variety of disciplines, including marketing, branding, Internet marketing, computer-mediated communications and consumer behaviour.
- Helps fill a gap in understanding consumer perceptions and attitudes online.
- Conceptual clarification of the interactivity construct.
- Operational definition and clarification of the interactivity construct.
- The application of grounded theory methodology in the field of marketing, online marketing and consumer behaviour.

- Provides original empirical data in an under-researched industry sector, namely cars.
- Synthesis of a large number of interactive features dispersed through various streams of literature, which arrived at a comprehensive content analysis instrument to measure the structural interactivity of a web site.
- Validation of the 'perceived interactivity' construct.
- Validation of existing scales from literature.
- The use of real brands in experimental research.
- Established the role of interactivity in practice.
- Established the role of value in practice.

## 1.8 ORGANISATION OF THE THESIS

This thesis consists of seven chapters. The current chapter, overview of the research, gives the justification for this study, and summarises the research questions, methodologies used, research findings, and contributions of this study.

It is important to note that the structure of the thesis does not represent a chronological order of the research. Due to the emerging nature of the area under study, and the lack of academic research, an exploratory study was carried out in the very early stages of this project, in order to develop an original model of consumer-brand interactions online. Although some literature search was done prior to the interviews in order to establish broad areas of research and to devise the topic list for interviews, most of the literature review, especially the review on interactivity as the focal theory, was conducted after this exploratory study. Hence, this thesis differs from the traditional timeline of a doctoral study that starts with a literature review first. However, the thesis is structured in the traditional way, first presenting the background theory, then the focal

theory, and then the findings from the exploratory study. Hence, in Chapter 2, a literature review of marketing, branding and consumer behaviour on the Internet is presented, to set the scene and discuss the important issues identified in the emerging research area of brands and consumers online. The underlying theme of the interactivity of the Internet medium and individual web sites has also been emphasised throughout this chapter.

In Chapter 3, an extensive review of interactivity from various literature streams is presented. As interactivity was identified as the core construct for the conceptual model in the first phase of this study, it constitutes the focal theory for the thesis. The concept of interactivity is complex, and there is no consensus in literature on its definition or operationalisation. Hence, it was important to do an in depth analysis of all relevant literature from diverse fields, not only marketing, in order to identify relevant attributes and dimensions of this construct, which provided the basis for the operationalisation of this construct later on in Chapter 5. Following this synthesis of the literature, and discriminating the interactivity construct from other related but separate constructs, such as control, flow, personalisation and speed, a unified conceptual definition of interactivity was also proposed.

Chapter 4 presents the development of the conceptual model for this thesis. Exploratory interviews conducted with fifteen Internet and brand experts early on in the life of this project were analysed under grounded theory methodology guidelines. Grounded theory methodology and specific findings will be presented in that chapter. The conceptual model and individual propositions that emerged from the qualitative data were also supported throughout the chapter with conceptual and empirical literature in relevant areas. Interactivity was identified as the core category in analysis, and was proposed to be the central construct in the conceptual model of consumer-brand interactions online.

The overall theory was summarised as follows: The interactivity of a web site is expected to have an influence on how consumers evaluate that web site, respond to it and form their attitudes towards it, as well as how they perceive that web site's added values.

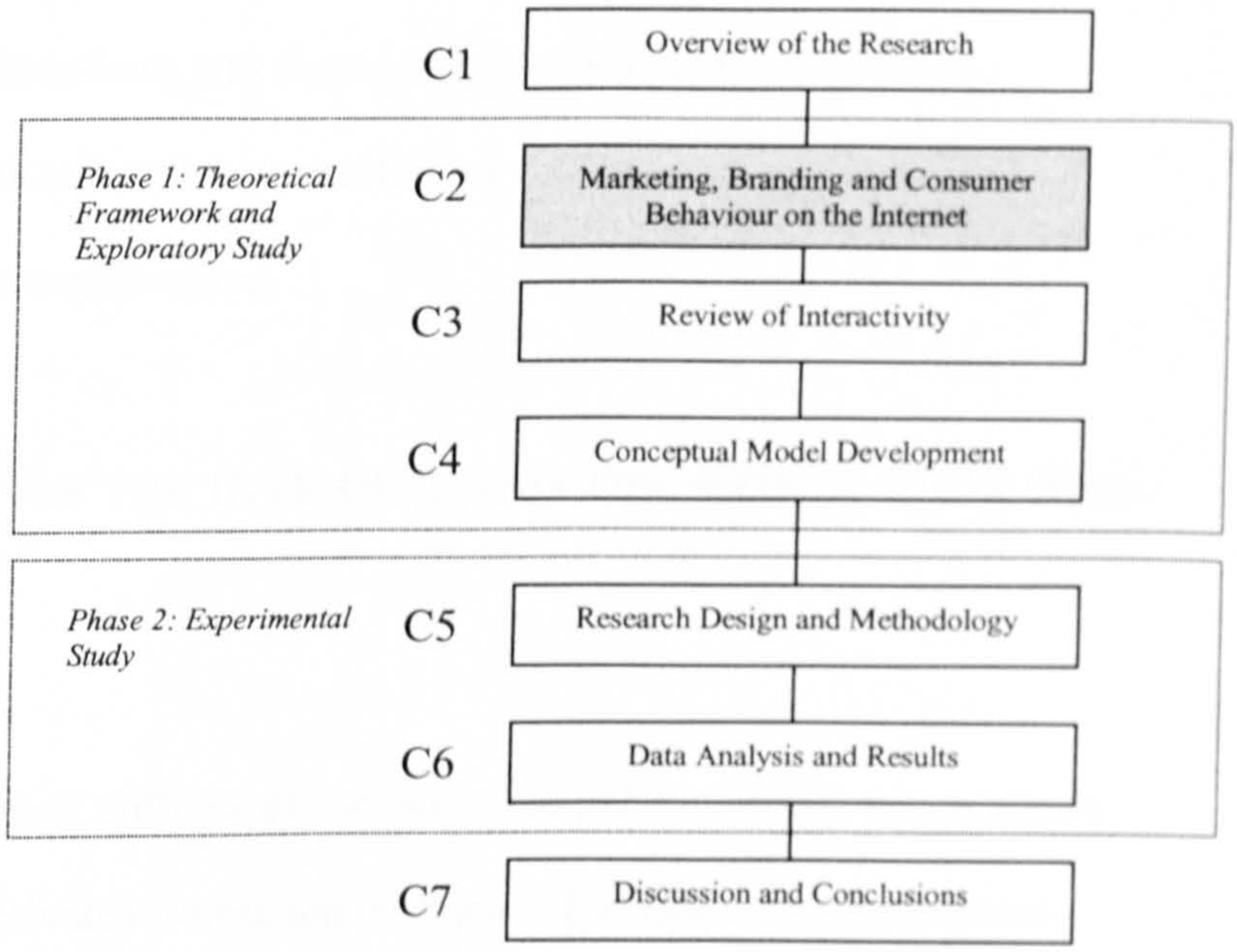
In Chapter 5, an empirical model was developed based on this conceptual model, where all constructs were operationalised with reliable and valid scales from the literature. Based on academic and practitioner literature, a comprehensive list of interactive features for web sites were identified and a content analysis form was developed to measure the structural interactivity of web sites. With this content analysis form, all automotive web sites listed in Yahoo.co.uk were content analysed, which allowed the subsequent selection of three car web sites to represent high, medium and low levels of interactivity. These three web sites were then used as experimental stimuli to measure consumer responses to different levels of interactivity. Chapter 5 also provides the details of questionnaire development and experimental design.

Chapter 6 reports the findings from the experimental phase of this study. It provides the rationale for the methods of analyses, and presents the results of hypothesis testing. Although the two indicators of interactivity, i.e. structural versus perceived interactivity, did not converge for this study, strong support was found for the effects of perceived interactivity on consumer response variables. To summarise, empirical results supported the conceptual proposition that the concept of interactivity is important and influential in understanding consumer behaviour on the Internet. Perceived interactivity had a significant effect on brand personality, involvement, perceived control and expectations, which in turn, jointly predicted perceived value from a web site, which consequently predicted the attitude towards that web site. Support was also found for the propositions that consumers perceive brands as more exciting and involving online than offline.

Chapter 6 also shows that the experimental study has high levels of reliability and validity.

Finally, Chapter 7 discusses the findings of the study within the context of online marketing and branding, and shows that most of the findings are consistent with recent literature. The findings related to the brand personality construct are unique, as this area has been neglected in the literature. The chapter concludes that this thesis makes a significant contribution to the literature in terms of theoretical, empirical, methodological, and practical implications. Limitations of the study and future directions for research are also presented.

# CHAPTER 2. MARKETING, BRANDING AND CONSUMER BEHAVIOUR ON THE INTERNET




## 2.1 INTRODUCTION

The overarching theme of this thesis is the effect of web site interactivity on key consumer responses to a brand's web site. More specifically, having identified the construct of interactivity as the key differentiator of the online medium based on the exploratory study in the first phase of this research, the second phase tested this theory of consumer-brand interaction on the Internet using laboratory experiments.

To set the scene for the forthcoming chapters on both phases of the study, this chapter discusses the relevant background areas of marketing, branding and consumer behaviour on the Internet. The chapter also points to the origins of the exploratory interview questions asked in the first phase of the study. Section 2.2 gives a brief history of the Internet and the World Wide Web (WWW), followed by the commercial use of

the Internet in Section 2.3. Within the commercial use of this new medium, three distinct areas were identified as marketing, branding and electronic commerce. In Section 2.4, the consumer behaviour literature within the Internet context was reviewed, and important attributes were identified in terms of empowerment and control, involvement, increased expectations, and demographics. Finally, findings from empirical studies were discussed, and factors affecting online consumer attitudes, behaviour and satisfaction were identified.

## 2.2 A BRIEF HISTORY OF THE INTERNET AND THE WORLD WIDE WEB (WWW)

The Internet is a vast network of millions of computers around the world, which allows academic, commercial and private information exchange. The history of the Internet goes back to 1960s. The US Defence Department developed the first network, which can be considered the ancestor of the Internet, in 1969. This project started as an experiment with the main aim to ensure the maintenance of military communications in the event of a nuclear strike. Other individual networks, such as Usenet and BITNET were set up in the 1970s, with the aim of serving the academic community. The National Science Foundation (NSF) brought together these academic networks under NSFnet, which, in 1983, was renamed the 'Internet' (Blakeman 1997).

The academic community in the UK accessed the Internet through JANET (Joint Academic Network) from the early 1980s. At the European Particle Physics Laboratory (CERN) in Geneva, Switzerland, Tim Berners-Lee originated the World Wide Web (WWW) in 1990 to enable the sharing of knowledge by complex distributed teams (Berners-Lee *et al.* 1994). With the invention of the hypertext, the WWW, and web browsers, communications over the Internet became more user-friendly (Geissler and

Zinkhan 1998). Over a short period, the Internet became the fastest growing mass communications medium the world has ever seen. The number of host computers connected to the Internet worldwide increased exponentially from 235 in 1982 to 29,600,000 in 1998 (Cringely *et al.* 1998a, 1998b). Today, there are over 171 million host computers (Internet Software Consortium 2003), connecting an estimated 604 million people in 202 countries around the globe (CIA 2003).

## 2.3 COMMERCIAL USE OF THE INTERNET

Prior to the invention of the WWW and introduction of 'browsers,' mainly researchers and academics used the Internet for the purposes of information exchange. Private and commercial connection to the Internet was allowed only in the early 1990s. Since then, the Internet has evolved from being an information exchange platform for computer literate academics to a vast communications and commerce medium for more than 600 million people around the globe. No other mass communications technology, such as the radio or TV, has reached the masses so fast. Unlike radio or TV, there are no regional or national boundaries on the Net. The inherent global nature of the Internet is frequently mentioned in the literature as one of the instigators of a paradigm shift in marketing (Negroponte 1995; Quelch and Klein 1996; Barwise 1997; Cairncross 1998; Ghosh 1998; Kitchin 1998).

In the early days of the World Wide Web, most companies joined the race to establish a "presence" on the WWW like their competitors, without always setting a clear strategy to take full advantage of this new medium. The evolution of corporate existence in the virtual space usually starts with a directory listing, and moves through the more sophisticated stages of building corporate image and brand awareness, to eventually selling on the Net. In 1998, a research project, which analysed 590 British companies

with an annual turnover of more than £500m a year, showed that almost 40% of these companies had no Internet strategy (Computer Weekly 1998). Since then, there has been some improvement in corporate attitudes concerning the use of this medium, as some companies today have designated staff positions to manage their online strategies. However, this improvement is far from ideal. Perry and Bodkin (2000) content analysed Fortune 100 company web sites, and concluded that many companies still had a naïve appreciation of customer requirements, and most developed a web presence simply as a reaction to competitors. The most recent research looking at the adoption of the Internet in the UK retail sector, has found that only 37% of the UK's leading retailers have established an active website, and only 18% were engaged in online selling (Doherty *et al.* 2003). The same study also identified the presence of an Internet strategy and an appropriate Internet target market as the most important discriminators of the level of Internet adoption.

The 'dot.com bubble burst' of the early 2000s showed that many investors and businesses speculated in a frenzied way, which resulted in an array of offerings brought to the market, not necessarily based on solid consumer demand or sound business models, but on technological possibilities alone. Many dot-coms tried to replace other sources of supply without adding any real value for which customers were willing to pay (Stewart and Pavlou 2002). Following the liquidation of more than 600 Internet start-ups (Page and Lepkowska-White 2002) in this 'dot-com bust', the worst seems to be over for the industry, as business-to-consumer e-commerce has continued to grow substantially with online retail sales in the UK of £7.6 billion in 2002, and an estimated £14 billion for 2003 (Interactive Media in Retail Group 2003).

### 2.3.1 Marketing on the Internet

Chaffey *et al.* (2000, p.6) define Internet marketing as "*the application of the Internet and related digital technologies to achieve marketing objectives*". This broad definition does not differentiate between types of goods and services or types of business models as it inherently implies that any type of business with any type of products, services or utilities can be practicing 'Internet marketing' as long as they apply Internet technologies to market their goods or services. Similarly, a dictionary of marketing terms (Imber and Toffler 2000) provides another broad definition of Internet marketing as the process of building and maintaining customer relationships through online activities to facilitate the exchange of ideas, products and services that satisfy the goals of both buyers and sellers.

Since businesses started using the Internet and the World Wide Web as a commercial medium from early 1990s, several articles and books have been written, both by academics and by practitioners, about how to use this medium properly as a marketing channel. The common denominator in these conceptual arguments is that the Internet represents a revolutionary change and a business opportunity to companies who can use the inherent qualities of the medium, such as two-way interactivity, customisation and global accessibility, to their advantage (Rayport and Sviokla 1994, 1995; Ellsworth and Ellsworth 1995; McKenna 1995; Berthon *et al.* 1996; Hoffman and Novak 1996, 1997; Kalakota and Whinston 1996; Kierzkowski *et al.* 1996; Martin 1996; Paul 1996; Quelch and Klein 1996; Aldridge *et al.* 1997; Angelides 1997; Mitchell 1997; Hurst *et al.* 1998; Kiani 1998; KPMG 1998; Johnston 2001).

According to Kuhn (1970), who introduced the concept of 'paradigm shifts' within the context of scientific revolutions, a paradigm has two core characteristics. First, it refers

to 'an entire constellation of beliefs, values and techniques shared by the members of a given community'. Second, it determines the problems these communities perceive to be important, along with methods to solve them. A paradigm crisis occurs when an established framework, or what Kuhn called 'normal science', is challenged by new insights or new tools that raise doubts about old assumptions. Due to the revolutionary nature of the many attributes of the online medium, it has been widely suggested, both in earlier and recent literature, that the Internet represents a paradigm shift in business processes, marketing and commerce (Peppers and Rogers 1993; Ho 1994; Rayport and Sviokla 1995; Aaker 1996; Armstrong and Hagel 1996; Hoffman and Novak 1996, 1997; Martin 1996; Brännback 1997; Mitchell 1997; Peterson *et al.* 1997; Dutta and Segev 1998; Larsson and Lundberg 1998; Riley 1998; Sharma and Sheth 2004; Stafford *et al.* 2004). Table 2-1 summarises the attributes of the Internet paradigm as identified from the literature.

**Table 2-1 Attributes of the Internet paradigm**

| Attribute | Details | References |
|---|---|---|
| Availability / Accessibility | Companies increase their hours of business to 24 hours over 365 days on a global spectrum, which gives consumers flexible and convenient access. | (Hoffman *et al.* 1995; Berthon *et al.* 1996; Kierzkowski *et al.* 1996; Paul 1996; Barwise 1997; Ghosh 1998; Kiani 1998; Jobst 1999) |
| Customisation / One-to-one marketing | Marketing communications as well as products and services can be customised for each individual user at a relatively low cost. | (Peppers and Rogers 1993, 1997; Kierzkowski *et al.* 1996; Martin 1996; Cairncross 1998; Czerniawska and Potter 1998; Doyle 1998; Larsson and Lundberg 1998; Chaffey 2000) |

| Attribute | Details | References |
|---|---|---|
| Interactivity / Two-way communications | Consumers can instantly interact with company or brand web sites. The traditional nature of one-way communications from company to consumers changes to two-way interactivity or even consumer-to-consumer communities. | (Berthon *et al.* 1996; Kierzkowski *et al.* 1996; Martin 1996; Aldridge *et al.* 1997; Barwise 1997; Peterson *et al.* 1997; Brooks 1998; Czerniawska and Potter 1998; Doyle 1998; Schultz and Schultz 1998; Chaffey 2000; de Kare-Silver 2000; Johnston 2001; Stewart and Pavlou 2002) |
| Consumer empowerment | Balance of power shifts from companies to consumers, as they feel more empowered and in control of their interactions with companies on the Internet. | (Aldridge *et al.* 1997; Hoffman and Novak 1997; Mitchell 1997; Czerniawska and Potter 1998; Geissler and Zinkhan 1998; KPMG 1998; Schultz and Schultz 1998; Van Raaij 1998; Korgaonkar and Wolin 1999; de Kare-Silver 2000; Kania 2001) |
| "Pull" versus "Push" media; voluntary consumer activity | The Internet is a "pull" medium where the consumer interaction and participation is voluntary, unlike "push" media such as television. | (Berthon *et al.* 1996; McWilliam *et al.* 1997; Barwise and Hammond 1998; Geissler and Zinkhan 1998; Chaffey 2000; Rowley 2004a) |
| Disintermediation / New intermediaries | The Internet threatens the future of intermediaries because it enables companies to reach end users directly; or it creates new intermediaries specialised in information processing and storing or logistics. | (Lee and Clark 1996; Quelch and Klein 1996; Barwise 1997; Peterson *et al.* 1997; Cairncross 1998; Czerniawska and Potter 1998; Doyle 1998; Hurst *et al.* 1998; KPMG 1998; Larsson and Lundberg 1998; Nilson 1998; Sarkar *et al.* 1998; Chaffey 2000; de Kare-Silver 2000) |
| Global businesses | The Internet environment is global by definition because the geographical boundaries and physical distances become irrelevant in cyberspace. | (Negroponte 1995; Berthon *et al.* 1996; Paul 1996; Quelch and Klein 1996; Barwise 1997; Cairncross 1998; Ghosh 1998; Kitchin 1998; KPMG 1998; Chaffey 2000) |
| Real-time information | Internet technologies combine the best features of mail order and telephone shopping, and make it possible for companies to collect real-time information from their web site visitors. | (McKenna 1995; Berthon *et al.* 1996; Barwise 1997; Larsson and Lundberg 1998; Sivadas *et al.* 1998; de Kare-Silver 2000) |

| Attribute | Details | References |
|---|---|---|
| Reduced costs | Internet technologies can significantly reduce the cost of doing business. | (Gates *et al.* 1995; Aaker 1996; Berthon *et al.* 1996; Kalakota and Whinston 1996; Lee and Clark 1996; Bakos 1997; Barwise 1997; Mitchell 1997; Peppers and Rogers 1997; Cairncross 1998; Doyle 1998; Ghosh 1998; The Future Unit 1998; Jobst 1999; Strader and Shaw 1999) |
| Levelling of prices | The Internet would eventually level prices due to the global reach to wide choice, access to accurate price information and comparison, and intelligent search agents. | (Gates *et al.* 1995; Quelch and Klein 1996; Alba *et al.* 1997; Bakos 1997; Barwise 1997; Hagel and Armstrong 1997a; Cairncross 1998) |

Based on the references dated 1998 and earlier[2] in Table 2-1, the questions relating to paradigm shifts, consumer attributes and pricing were devised for the exploratory interviews.[3]

The attributes listed in Table 2-1 define the new interactive marketing paradigm. This paradigm presents both opportunities and challenges to companies and marketers as a need for adaptation, if not revolution, emerges to shift 'one-to-many' marketing communications model for mass media to a new 'many-to-many' model (Hoffman and Novak 1996) for the new media. As opposed to the 'push' approach of traditional media such as television, radio, newspapers, magazines, and direct marketing methods, online media is 'pull' by definition, where the free flow of information creates a potential for communication between businesses and their customers, and among customers as well (Rowley 2004a). Table 2-2 below summarises fundamental differences between the traditional and online media.

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[2] The exploratory interviews were carried out between January and March 1999.
[3] Please see details of these questions in Appendix 1a.

**Table 2-2 Differences between traditional and online media**

| Attributes | Traditional media | Online |
|---|---|---|
| Space | Expensive commodity | Cheap, unlimited |
| Time | Expensive commodity for marketers | Expensive commodity for users |
| Image creation | Image is everything<br>Information is secondary | Information is everything<br>Image is secondary |
| Communication | Push, one-way | Pull, interactive |
| Call to action | Incentives | Information (incentives) |
| Audience | Mass | Targeted |
| Links to further information | Indirect | Direct/embedded |
| Investment in design | High | Low, allows change |
| Interactivity | Low | Range across a spectrum from low to two-way dialogue |

**Source**: Rowley (2004a)

### 2.3.1.1 Business Models for the new medium

One of the earliest typologies of Internet business models was provided by Hoffman *et al.* (1995), who classified commercial web sites into six distinct types: 1) online storefront, 2) Internet presence, 3) content, 4) mall, 5) incentive site, and 6) search agent. Similar to this classification, another frequently cited article about the business use of the Internet presents a typology of four marketing applications on the World Wide Web: 1) interactive brochure, 2) information clearinghouse, 3) virtual storefront and, 4) customer service tool (Ainscough and Luckett 1996). The interactive brochures provide information about companies, and their products and services; and can range from a simple text-only form to sophisticated multimedia with audio, video and interactivity. The information clearinghouse provides a virtual meeting place for people with similar interests to share information and discuss certain issues. The virtual storefront is a commercial web site that offers electronic commerce facilities to customers. Finally, the customer service tool acts as a way to provide help and service

to customers. The authors point out that while each organisation can utilise the Internet in a different way, "*...going beyond the informational level of the interactive brochure may yield significant competitive advantages*" (Ainscough and Luckett 1996, p.45).

An Internet practitioner proposed five possible business models for electronic commerce: vanity sites, information sites, advertising sites, subscription sites, and storefront sites (Samuelsen 1998). These are very similar to Ainscough *et al.*'s (1996) classification of different business uses of the Internet.[4]

In summary, the literature regarding business models for the Internet, points to the unique qualities of this new medium, which allow the creation of new business models. For example, the need for information (or filtering the information overload) creates the new business models of 'free to use' search engines and content sites, usually supported by banner advertising. Virtual stores, as the new business model for retailing, have certain advantages over their 'bricks and mortar' counterparts, e.g. 24/7 availability, convenience and interactivity, which are some of the differentiating qualities of the online medium.

#### 2.3.1.2 Marketing strategies on the Internet

Prior to the widespread use of the Internet and the WWW, Glazer (1991) wrote about the impact of information and information technology on marketing. He pointed out that, despite the rapid transformation of economic and business activity due to information technologies, very little formal attention had been paid to the effects of this

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[4] The questions "Do companies need to change their business models and/or brand strategies for this new medium?" and "Will the 'virtual business model' affect blue chip / existing brands?" were based on these references.

transformation on marketing theory and practice. Glazer was also one of the first to hypothesise that the balance of power would shift from seller (company) to buyer (consumer) due to information technologies, and that the distinction between firm and consumer would erode as consumers participate in design and creation of products.

Similarly, in their frequently cited article about how the information revolution transforms the nature of business, Rayport and Sviokla (1994) differentiate a new 'marketspace' created by new information technologies (which they later defined as "*a virtual realm where products and services exist as digital information and can be delivered through information-based channels*" (Rayport and Sviokla 1995, p.75)) from the traditional 'marketplace' in terms of content (what companies are offering); context (how they are offering it); and infrastructure (what enables the transaction to occur). Their insight into the early examples of the revolutionary information technologies, such as ATMs, voice messaging services, and proprietary computer networks, which subsequently included the Internet, influenced and inspired a large amount of literature that followed. The authors believed that the marketspace environment would eventually dominate, and that the lines between product, place and promotion would blur; and that the traditional marketing mix would no longer apply, which in turn could cause brand equity to evaporate rapidly.

Rayport and Sviokla (1994, p.141) also compare the differences in value creation in marketplace and marketspace: "*One of the profound consequences of the ongoing information revolution is its influence on how economic value is created and extracted*". In the marketplace, companies aggregate all content, context and infrastructure activities into a single value proposition in order to create value for consumers. In the marketspace, on the other hand, content, context and infrastructure can easily be separated "*to create new ways of adding value, lowering costs, forging relationships*

*with non-traditional partners, and rethinking 'ownership' issues*" (p.145). The authors emphasise that managing in the marketspace requires a radical shift in thinking, from physical place to information space; and that the marketspace strategies must be dynamic and creative.

The revolutionary effects of the information technologies discussed by these early writers have been more strongly emphasised since the invention of the Internet. Once the commercial use of the Internet started gaining momentum from mid-1990s, there has been a plethora of academic and practitioner writings conceptualising the effects of the new information technologies and the new media, i.e. the Internet, on marketing. The common theme was that marketing theory and practice needed to shift from a one-to-many mass marketing orientation to a one-to-one, interactive and customised marketing where consumer-oriented companies would "mass customise" their offering to meet the increased expectations of the more powerful and 'in control' consumers. In addition to this broad theme concerning the new marketing paradigm, the literature regarding online marketing strategies, both at conceptual and empirical level, deals with more specific issues of management and strategy as presented below.

First, a concern has been raised in the literature about online activities and electronic commerce being perceived as highly technical, and hence, in the domain of the IT function, rather than marketing (McWilliam *et al.* 1997[5]; de Kare-Silver 2000). The lack of involvement from marketing departments and senior management represents a threat to developing viable online strategies and commitment to strategic integration of marketing communications. Chaffey *et al.* (2000) also stress the importance of achieving senior management commitment as a key factor of online marketing success.

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[5] The question "What levels of management are involved in web site development?" for the exploratory interviews was based on this reference.

More recently, Tapp and Hughes (2004) highlighted how new technologies like the Internet and e-commerce are acting as internal agents of change within organisations, forcing changes in internal structures and hierarchies, which in turn might give the marketing function an influence at board level. Findings from another recent academic study into customer relationship management online (O'Leary *et al.* 2004) also emphasised the importance of organisational culture, top management support and collaboration between marketing and IT personnel for achieving online success.

Second, drawing traffic to a web site is a strategic issue. Like any other marketing communication, a web site can be used to inform customers of a company and its products and services. However, due to the voluntary nature of consumers' interactions with a web site, building a web site is not enough to create an Internet presence. Rowley (2004a) suggests that a web site can be promoted via the use of banner adverts, cooperation with affiliate networks and portals, and through advertising in traditional media. Other promotional strategies include advertising the company's Internet address (URL) in traditional media, publishing or sponsoring newsletters, or co-branding with other companies, where they jointly display each other's content, and develop joint promotions using logos or banner advertisements (Rowley 2004a).

Third, there is the strategic issue of integrating online marketing communications to the more traditional marketing methods. Shultz and Shultz (1998, p.18) define Integrated Marketing Communications as: "*a strategic business process used to plan, develop, execute and evaluate co-ordinated, measurable, persuasive brand communication programmes over time with consumers, customers, prospects and other targeted, relevant external and internal audiences*". The authors emphasise the importance of a company's ability to capture and manage information technology towards an integrated

marketing communications strategy.[6] Internet and advertising practitioners generally support this conceptual argument (as evidenced by practitioner literature, as well as the exploratory interviews for this study); however, there is a lack of academic research into the strategy integration issues in online marketing. One recent conceptual argument is provided by Sharma and Sheth (2004), where the authors point out that the primary reason for the need for marketing integration is the potential synergy inherent in marketing activities, and that companies need to create new organisational designs to adopt a more integrated view of the marketing function.

One of the few academic research projects looking into strategic aspects of online marketing was conducted in 1999 classifying three distinct types of Internet presence. After administering a postal survey of 500 Irish companies and a content analysis of 104 web sites of Irish businesses, this study concluded that these firms did not exploit their Internet presence to full capacity (Geiger and Martin 1999). Research that is more recent suggests that many firms in the UK today still do not have a clear strategy or an integrated approach to their online communications (Doherty *et al.* 2003).

Fourth, there is the issue of the consistency of brand values and identity from one medium to another. Aaker (1996) warns about the belief that a new paradigm requires a new brand identity and execution. He advocates consistency even under paradigm shifts. Nilson (1992) also suggests that when communicating a brand's intangible values, the message should be consistent across all media and be relevant to potential customers. Kania (2001, p.86) defines brand identity as "*the collection of images, ideas, and brand associations that form the perception of the brand in the mind of the*

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[6] The question "Do companies integrate their Internet strategy with the overall marketing strategy?" for the exploratory interviews was based on this reference.

*customer*". She agrees that, as a fundamental marketing principle to maintain a clear brand identity, it should be kept consistent on the Internet. However, the author also points out that, in order to reach new audiences, the brand web site can include new features that cannot be replicated in other forms of media.[7] More recently, Rowley (2004b, p.236) reached a similar conclusion, after studying the McDonald's web site using case study methodology, that brand presence and experience online should be consistent with the offline equivalent, but also add value or another dimension to the overall brand experience.

Although advocating consistency in brand communications even under paradigm shifts, Aaker (1996) also offers 'moving the brand down' as a strategic option to companies faced with increased price sensitivity, new retail channels and technological change. All these factors seem to be relevant in the Internet environment. In Aaker's own words: "*Technological change can also influence the cost structure, as brands emerge that are simpler and cheaper, creating new price points... These forces represent a major paradigm shift*" (p.279).[8]

Fifth, there is the issue of creating brand and web site value in Internet marketing. From a marketing perspective, the Internet has been criticised as being impersonal and lacking emotion (Leong *et al.* 1998; Kania 2001). Traditionally, marketers have been using the audio-visual capabilities of a communications medium, especially television, to emphasise a brand's intangible attributes and emotional values. Although audio and video are becoming more available to online marketers, due to bandwidth limitations, it is still difficult for the Internet to compete with the superior audio-visual capabilities of

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[7] The questions "Should the brand identity, image and personality be consistent with other marketing communications media?" and "How do you communicate brand identity online?" for the exploratory interviews were based on these references.
[8] The question "Will the Internet force the brands to 'move down'?" was based on this reference.

television.[9] Hence, the challenge for online marketers is to communicate brand values and personality using Web functionalities (Kania 2001).

More recently, Stuart and Jones (2004) suggested that although the company web site used as a communications medium may not be an effective way to communicate brand's emotional values, viewed as a business application, by enhancing its entertaining and interactive qualities companies can bring emotions back into the equation, and develop more emotional relationships with their customers.

McWilliam *et al.* (1997) argue that commercial web sites have to create distinctive and differential advantage over their traditional competitors in order to be successful. Aldridge *et al.* (1997) similarly talk about 'offering products with unique benefits' as a long-term strategy for businesses on the Internet because they believe that online consumers will be segmented and differentiated by customer benefits. Walsh and Godfrey (2000) argued that online retailing offers added values to customers beyond the ease and convenience of the shopping process, which makes the Internet a real threat to traditional retailing. Supporting these conceptual arguments, an empirical study looking at consumer behaviour online found that consumers demand value-adding services and offerings on the Internet that cannot be easily provided through other retail channels (Jarvenpaa and Todd 1997).[10]

Geissler and Zinkhan (1998) suggest that interaction with a web site is a key mechanism for offering value to consumers. Breitenbach and Van Doren (1998) point out that Internet marketers provide web site visitors with informative, interactive, entertaining,

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[9] The question "Is it more difficult to communicate the emotional values of a brand online as opposed to traditional media?" for the exploratory interviews was based on this concept.
[10] The question "How can companies add value to their brands online?" for the exploratory interviews was based on these references.

and value-added experiences. More specifically, this review identified the following value adding strategic tools on the Internet as part of the interaction between a user and a web site[11]: **Customisation** (Moore and Andradi 1996; Walsh and Godfrey 2000; Kania 2001; Grigsby 2002), **entertainment** (Breitenbach and Van Doren 1998; Eighmey and McCord 1998; Dayal *et al.* 2000; Goodson *et al.* 2000; Childers *et al.* 2001; Kania 2001; Page and Lepkowska-White 2002; Rowley 2004a), **creating rewarding brand experiences** (Pearson 1996; Schmitt 1999; Dayal *et al.* 2000; Kania 2001; Rubinstein and Griffiths 2001; Page and Lepkowska-White 2002), **relevant information** (Ho 1994; Rayport and Sviokla 1994; McKenna 1995; Ainscough and Luckett 1996; Moore and Andradi 1996; Blakeman 1997; Hoffman and Novak 1997; Mitchell 1997; Raman 1997; Breitenbach and Van Doren 1998; Eighmey and McCord 1998; Ng *et al.* 1998; Barnes and Vidgen 2000; Brand Strategy 2002; Page and Lepkowska-White 2002; Rowley 2004a), **building relationships** (Pearson 1996; McGovern 1999; Walsh and Godfrey 2000; Rowley 2004a), **improving customer service** (Rayport and Sviokla 1994; McKenna 1995; Mehta and Sivadas 1995; Ainscough and Luckett 1996; Kalakota and Whinston 1996; Alba *et al.* 1997; Larsson and Lundberg 1998; Leong *et al.* 1998; Lynn *et al.* 1999; Rowley 2004a), and finally, **creating online communities** (Toffler 1980; Armstrong and Hagel 1996; Hagel and Armstrong 1997a; Breitenbach and Van Doren 1998; Cairncross 1998; Dayal *et al.* 2000; Walsh and Godfrey 2000; Holland and Baker 2001; Kania 2001; Rowley 2004a).

Although providing relevant information on the Internet can add value to brands, providing unnecessary or unreliable information can potentially create the opposite effect. Earlier studies showed that while good quality information helps consumers

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[11] Based on these references, different ways of adding value to brands on the Internet were also discussed during the exploratory interviews.

make better decisions, too much information could decrease decision effectiveness (Jacoby *et al.* 1974; Keller and Staelin 1987).[12] Due to the volume of information online, the Internet has been frequently criticised as generating information overload (Caragata 1994; NUA Internet Surveys 1997, 1999; Wilson 1998). Rogers (1986, p.181) defines information overload as "*the state of an individual or system in which excessive communication inputs cannot be processed, leading to breakdown*". More specifically within the Internet context, Tudor (1997, p.1) defines Internet-induced Information Overload as "*a new source of 'gray literature' – literature that is difficult or impossible to obtain from traditional indexes and databases... growing at a frenzied pace and is virtually uncontrollable*".

With an overwhelming number of commercial, academic and personal web pages offering substantial amounts of information with questionable quality, it is important for brand web sites to overcome the 'noise' in the virtual environment by providing helpful, easy-to-find information on their web sites, and securing search engine positioning (Wilson 1998). A recent empirical study emphasised the importance of keeping web site design simple in order to avoid information overload (Rosen and Purinton 2004).

### 2.3.2 Internet Branding

The theory of the brand and branding forms a widely studied and grounded branch of the marketing literature. The definition of a brand and strategies to create and maintain successful brands are generally agreed upon within the literature. American Marketing Association (AMA) defined a brand in 1960 as follows: '*A name, term, sign, symbol, or design, or a combination of them, intended to identify the goods or services of one seller*

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[12] The question "Information overload: Do strong Internet brands offer little but high quality information?" for the exploratory interviews was based on this concept.

*or group of sellers and to differentiate them from those of competitors*' (American Marketing Association 1960). This definition, widely accepted by most in marketing and branding literature (Aaker 1991; Kotler *et al.* 1996), has been criticised by others (Crainer 1995; de Chernatony and Dall'Olmo Riley 1997) as concentrating too much on the visual features of brands rather than the more valuable intangible benefits, such as being a status symbol or a short-hand device for consumer choice. In an attempt to broaden the AMA definition of a brand, de Chernatony and McDonald (1998, p.20) included more intangible aspects, such as unique added values to explain the concept of a brand as, "*an identifiable product, service, person or place, augmented in such a way that the buyer or user perceives relevant, unique added values which match their needs most closely. Furthermore, its success results from being able to sustain these added values in the face of competition*". Barwise (1997, p.222) agrees with the importance of intangible benefits, and describes brands as "*a way of simplifying consumers' choices in an over-communicated and untrustworthy world, by providing consistent, reliable quality and value for money and in some cases intangible benefits as well*'.

The brand is a complex construct with at least thirteen different concepts identified as being important from current literature, and supported by the exploratory interviews in this study.[13] These dimensions include **association** (Aaker 1991; de Chernatony and McDonald 1998), **differentiation** (Aaker 1991; Kapferer 1992; de Chernatony and McDonald 1998), **gap between consumers' and brand owners' perceptions of the brand** (de Chernatony and Dall'Olmo Riley 1997; de Chernatony 1999), **brand as a holistic totality of values** (Kapferer 1992), **identity** (Kapferer 1992; Aaker 1996), **perceived image** (Kapferer 1992; Aaker 1996), **character/personality** (Plummer 1985;

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[13] Due to the complex nature of brands and the different and varied backgrounds of the respondents in the exploratory interviews, they were asked to give a definition of the brand in their own words. They were also asked whether they would change that definition for brands on the Internet.

Aaker 1991; Aaker 1997; de Chernatony and McDonald 1998), **price premium** (de Chernatony and McDonald 1998), **promise** (Kapferer 1992), **reputation/fame** (de Chernatony 1999), **shorthand device** (Aaker 1991; de Chernatony and Dall'Olmo Riley 1997; de Chernatony and McDonald 1998), **trust/risk reducer** (de Chernatony and Dall'Olmo Riley 1998), and **value** (Aaker 1991; Nilson 1992; Christopher 1996; Pearson 1996; de Chernatony and Dall'Olmo Riley 1998; Keller 1998; Nilson 1998; de Chernatony *et al.* 2000).

The importance of brands and the tangible and intangible benefits they represent both for their owners and for consumers have been emphasised within the Internet context. Moore and Andradi (1996, p.53) predicted that brands would "*continue to play a dominant role in marketing – no matter what the channel*". More specifically in Internet terms, Aldridge *et al.* (1997) suggested that branded products and respected merchants would help reduce consumers' fears and insecurity. Degeratu *et al.* (2000) supported this argument empirically as their research showed that brand names can be more valuable when information on fewer attributes is available online. Although Ward and Lee (2000) accept that brand names can act as assurances of quality in consumers' minds, their empirical research results indicate that experienced Internet users are more likely to search for alternative sources of information and be less reliant on product branding. One of the implications of these findings could be that newly created digital brands would be able to compete against traditional offline brands on a more level playing field. Porter (2001), on the other hand, does not agree with this argument, claiming that digital brands are more difficult to build than traditional ones due to the lack of physical presence and direct human contact. Johnson and Griffith (2002) support Porter's argument by pointing out that part of the failure of many dot-coms was founded on the level playing field argument. The authors suggest that, although Internet start-up companies can design professional web sites and compete with larger players, this does

not mean that they possess comparable brand equity as traditional, established brands; because brand equity is built on consumer loyalty, brand awareness and associations, perceived quality and other proprietary brand assets (Johnson and Griffith 2002). Griffith and Gray (2002) provided additional empirical support to these arguments when the results of their experiments indicated that higher levels of brand familiarity resulted in higher perceived quality and believability of the content of a web site. The authors argued that this finding, which was consistent with prior research on brand as an extrinsic cue, challenged the legitimacy of the 'level playing field' argument.

More recently, this view was empirically supported by Lee and Tan (2003), when they showed that consumers are more likely to shop online for products that are well-known brands than for products that are lesser-known brands.

The literature looking at the role of brands on the Internet does not change the definition of brands and branding. Usually the main concern is either to identify ways to migrate offline brands onto the Internet successfully, or to create new digital brands. On the Internet, the brand experience from the consumers' point of view becomes more important than offline (Kania 2001; Rubinstein and Griffiths 2001); and the deliverable brand promise, good web site design and a sound business model on which the digital brands function are the key components of success (Dayal *et al.* 2000). The authors accept that while these promises may not be unique to the Internet, the medium's interactivity helps digital brands to deliver these promises more quickly, efficiently and cheaply. In the traditional world, brand promises are developed over time, usually at great effort and expense to ensure the brand promise can be delivered and communicated (Rubinstein and Griffiths 2001). The interactive qualities of the Internet seem to help speed up this process more cost effectively for brand owners.

Chaffey *et al.* (2000) identify four ways of migrating brands on to the Internet: 1) migrating a traditional brand online, where well established brands in the real world can duplicate it online; 2) extending traditional brand (variant), where a slightly different version of the brand is created specifically for the Internet; 3) partnering with an existing digital brand, where an existing brand is promoted in association with a strong digital brand such as Yahoo or Google; and 4) creating a new digital brand, if the existing offline brand has negative connotations or is too traditional for the new medium.

Johnson and Griffith (2002) concentrate on more practical aspects of developing an effective online presence, in terms of brand equity and web site design. The authors define web site design as the "*representational richness of a web site, which includes content, navigation, graphic design, and functionality*" (p.35). Online retailers with high brand familiarity should develop highly vivid web sites to enhance emotional response from consumers. For newly established dot-coms with little or no brand equity, it is important to strike a balance between maintaining a quality web design while investing in brand building strategies that extend beyond the Internet (Griffith and Gray 2002; Johnson and Griffith 2002). An empirical study looking at the effects of online and offline advertising on generating web site traffic (Ilfeld and Winer 2002) supports these views that Internet companies should not invest too much in brand building advertising, as it found that advertising alone does not contribute to the immediate development of brand equity. It must be built over time with customer experience and usage rather than with heavy spending. This study also found that investments in partnerships and public relations were more effective in building awareness and encouraging site visits.

Similar to Johnson and Griffith's arguments based around brand equity and web site design, Page and Lepkowska-White (2002) developed a conceptual web equity

framework, where marketing communications, web design features, vendor characteristics and product/service characteristics all play an important role in creating web equity, which is indicated by web awareness and web image. The authors suggest that strong online brands create value for their customers by giving them relevant and useful information about their products, help them make wiser purchasing decisions while providing the consumers with a positive online shopping experience.

Consistent with previous literature, a recent article on branding in marketspace (Stuart and Jones 2004) identified the differentiating qualities of the online medium from traditional media as those of interactivity and global reach, and the ability of the receiver to access the message at a time convenient to them. The authors also pointed out that the interactivity and interconnectedness of the Internet changes communication forever, and companies need to respond to this new medium positively to build and protect their brands. Another recent study, based on qualitative interviews (Christodoulides and de Chernatony 2004), also identified interactivity as the element that makes the Internet different from traditional media, and influences the way that brand equity is created online.

### 2.3.3 Electronic Commerce

Electronic commerce (e-commerce) is the term used for trading on the Internet. Whilst some authors use a narrower definition of electronic commerce for the sake of clarity when they define it as "*the trading of goods and services conducted using the Internet and other digital media*" (Chaffey *et al.* 2000, p.6), others adopt a wider view when they predict that e-commerce will open up the way to a digital economy; and change business processes, from order processing to logistics and distribution systems to pricing (Hoffman and Novak 1997; de Kare-Silver 2000). Kalakota and Whinston

(1996, p.1) represent this broader view in their definition of e-commerce as "*a modern business methodology that addresses the needs of organizations, merchants and consumers to cut costs while improving the quality of goods and services and increasing the speed of service delivery*". Rowley (2002, p.2) distinguishes e-commerce (i.e. doing business electronically across the extended enterprise) from "e-business", which she defines as "*a wider concept that embraces all aspects of the use of information technology in business*".

Zinkhan (2002, p.415) added another wide view of electronic commerce to literature, when he defined it as "*using networks to achieve organizational goals*". He then listed three broad areas of the uses of e-commerce as, 1) automating existing processes and procedures, 2) informing stakeholders, e.g. customers, suppliers, the public, the government and employees, and 3) transforming an industry or organisation or process. Examples of automation include administering consumer questionnaires online, collecting and analysing consumer complaints, predicting customer preferences based on accumulated customer data on patterns of purchase behaviour. The information objective is primarily related to the promotion of services, such as the use of the company web site as a vehicle of mass communication, and the use of e-mail to reach a mass audience or for narrowly targeting a particular segment. Finally, e-commerce can transform industries, organisation or processes. For example, the Internet gives unprecedented power to consumers due to unlimited one-to-many and many-to-many communication possibilities. The nature of competition is transformed as companies realise they must maintain an aggressive online presence to survive following the unexpected success of new dot-com brands such as Amazon.com. New kinds of services like online auctions are created by new Internet technologies, which transform the ways buyers and sellers can interact and complete transactions (Zinkhan 2002).

The Department of Trade and Industry (DTI) in this country emphasised the importance of Internet-related new technologies and electronic commerce as early as 1998, with their seminal report "Converging Technologies: Consequences for the new knowledge-driven economy" (The Future Unit 1998). This report talked about the way the Internet and e-commerce would act as catalysts for change in business and society, and the importance of brands within this process. It predicted that within the next ten years, e-commerce would "*...greatly enhance the value of 'brands', in many cases sharply lowering the entry costs into the new markets where the trust implicit in brands can be further exploited*" (p.6).

Electronic commerce has been growing significantly both worldwide and in the UK, despite the shake-up of the industry in the early 2000s. According to NOP Research Group (1999), annual spend via the Internet in Britain was approaching £3 billion as of August 1999, and this figure was predicted to be as high as £9.5 billion by the end of 2000. This estimate was exceeded significantly with a government reported £12 billion for year 2000, excluding the financial sectors. This figure increased to £18.4 billion in 2001; and the total value of online sales including the financial sectors was over £30 billion (Office for National Statistics 2002). Government figures include business-to-business sectors and other services. E-retail sales to consumers alone take up an important portion of overall online revenues, with £7.6 billion in 2002, and an estimated £14 billion for 2003 (Interactive Media in Retail Group 2003).

## 2.4 CONSUMER BEHAVIOUR ON THE INTERNET

There is limited empirical research into consumer behaviour on the Internet. Most of the academic literature tends to be conceptual in nature, generally suggesting that consumers have more choice and control over their interactions with companies.

Empirical studies concentrate on online shopping motives and intentions. A comprehensive review of both conceptual and empirical research into online consumer behaviour will be presented in this section. The main themes that emerged from this review were the concepts of consumer empowerment, voluntary activity and involvement, increased expectations, decision-making and purchasing process, and the role of demographics in online consumer segmentation. Finally, the factors affecting consumer motives, incentives and behaviour were identified from empirical studies.

### 2.4.1 Consumer Empowerment

The Internet-related literature generally identifies consumers in the information age as being more sophisticated, more demanding and empowered (Aldridge *et al.* 1997; Mitchell 1997; Geissler and Zinkhan 1998; Schultz and Schultz 1998; Van Raaij 1998; Korgaonkar and Wolin 1999; Kania 2001). The concept of a confident and assertive consumer more in control of his/her wants and needs; initiating his/her interaction with companies to satisfy those needs, and proactively searching for value has been named in the literature as the 'new consumer' (Mitchell 1997) or 'prosumer' (de Kare-Silver 2000)[14]. According to Mitchell (1997), the concept of the 'New Consumer' shatters the old marketing paradigms, where brands now need to satisfy more sophisticated and active consumers as opposed to passive and predictable ones who can easily be manipulated.

Pearson (1996) stated that demography, education, diversity, competition and recession all had an effect on consumer behaviour. Consequently, the new consumer is more sophisticated, demanding and less trusting. They also have more power over companies.

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[14] Based on these references, respondents were asked to comment on the concept of the new consumer, and the implications of it for the online branding process.

They seek better value for money, and therefore are not prepared to pay big price premiums for brands. In his framework for developing a relationship management strategy, Pearson (1996, pp 21-22) identifies the new customer as "*willing to consider alternatives to established brands, questioning of company values and mission, searching for higher value for money, changing place and time of purchase, behaving individually, expecting more of the seller, resistant to advertising, and responds to good offers from anywhere*".

There is a general agreement in the literature that the interactivity of the Internet would empower consumers in terms of choice. Raman (1997) and Geissler and Zinkhan (1998) predicted early on that the interactive media would educate consumers and afford them increased knowledge and control over what they want to view or buy. Later, de Kare-Silver (2000) reiterated this prediction that technology would enable consumers to take more control of their environment, which in turn would facilitate changes in shopping habits and the electronic revolution in retail distribution. Hagel and Armstrong (1997b) argued that virtual communities would shift power from businesses to customers because they allow customers to talk to one another about products and services. Parsons (2002) provided empirical support to this argument when his research showed that online communities act as a driver behind online shopping by allowing consumers to communicate with others and belong to a reference group. Zinkhan (2002) pointed out that consumers can band together and complain collectively about unfair practices, and create their own web sites to protest their dissatisfaction. Stewart and Pavlou (2002, p.377) stress that "*in an interactive context, consumers have more influence on the process and on subsequent marketing communications by searching for, selecting, processing, using and responding to information*". The underlying premise of all these arguments is one of the most important traits of the new paradigm: interactivity of the medium facilitating one-to-many and many-to-many communication opportunities.

The concept of consumer empowerment is relevant for this thesis, as it has been identified during the exploratory interviews as one of the important factors in consumer-brand interactions online. Consumers' perceived control construct was measured as an indicator of their empowerment during the experimental phase of this study. Support was found for the proposition that when consumers find a web site highly interactive, they are also likely to feel more in control of their interaction with that web site, and hence, perceive more value from that web site.

### 2.4.2 Active and Involved consumer

It has also been suggested that consumers are more active and have a high level of involvement on the Internet (McWilliam *et al.* 1997; McGovern 1999; Perry and Bodkin 2000; Holland and Baker 2001; Johnston 2001; Rubinstein and Griffiths 2001; Huizingh and Hoekstra 2003; Solomon 2003). This increased involvement is due to the nature of the online medium, where the interaction with a brand web site is more transparent and direct; and consumers need to actively input time and energy into this interaction, whether it is submitting a comment or customer feedback, or actually completing an e-commerce transaction. The increasing role of the customer in the fulfilment process online will lead to 'co-creation', i.e. customers and marketers interact in aspects of design, production and consumption of the product or service (Sharma and Sheth 2004). As mentioned earlier in the attributes of the new paradigm, the online media is more 'pull' than 'push', where consumers search and find brand web sites and actively interact with them. As the balance of power shifts in favour of consumers, digital brands need to facilitate customer feedback and online communities around the brand as a way of encouraging involvement and brand loyalty (Rubinstein and Griffiths 2001).

Holland and Baker (2001, p.35) further suggest that customer involvement with brands on the Internet is so strong that brand owners no longer create an image and pass it on to the consumer; instead "*the producer and consumer are interactively creating the e-business brand*". The authors support their claims by evidence from case studies of digital brands, which, by techniques of personalisation and community building, managed to foster consumer participation and hence, increased brand loyalty. However, there are also potential barriers to customer participation, due to worries about consumer privacy and difficulties in sustaining online communities around the brand, as more and more competitors would emulate the same techniques. The challenge for digital brands is to understand customer orientations and motives well enough to turn their participation in co-creating the brand into a valuable experience.

The concept of an active and involved consumer is relevant for this thesis, as consumer involvement was identified during the exploratory interviews as one of the important factors in consumer-brand interactions online. During the experimental phase of this study, support was found for the proposition that consumers become more involved with a brand online than offline. It was also found that when consumers find a web site highly interactive, they are likely to feel more involved with the brand after their web site interaction, and perceive higher value from that web site.

### 2.4.3 Increased expectations

Some authors argue that the Internet encourages audiences to expect instant gratification and greater control without compromising quality, reliability and trust (Brooks 1998; Rubinstein and Griffiths 2001; Rust and Lemon 2001). Similarly, Nilson (1998, p.210) stated that the availability of services changed customer expectations: "*The 24-hour*

*availability of banking and other financial services does not only change the distribution pattern but also customer expectations, 9-5 opening hours on the high street is not enough any more*". Others support this view by stating that online customers have learned to expect better fulfilment of their needs and desires from digital brands (Dayal *et al.* 2000; Kania 2001). During the 1990s, traditional retailers provided increasing levels of service in order to compete in a mature marketplace, which increased customer expectations of high levels of service, and online retailing is perceived as one way of receiving this improved service. Increased consumer expectations challenge online marketers to create interactive experiences at all points in the online buying process, from navigating around the site, ordering a product, to payment and delivery (White and Daniel 2004). Sharma and Sheth (2004) agree with the argument that rising levels of performance lead to increased expectations and a lower level of satisfaction with the same standard of performance over time, as customer satisfaction strategies can easily be copied. The authors offer the solution of changing customer expectations rather than attempting to increase customer satisfaction to resolve this dilemma. This can be achieved by using the interactive and audio-visual nature of the Internet to demonstrate the actual performance of a firm and hence, to provide customers with more realistic expectations; e.g. broadcasting company activities through web cams, or publishing actual performance data on the company's web site.

The concept of consumer expectations is relevant for this thesis, as it was identified during the exploratory interviews as one of the important factors in consumer-brand interactions online. During the experimental phase of this study, support was found for the proposition that when consumers find a web site highly interactive, they are also likely to think that their expectations from the web site has been met or exceeded, and hence, they perceive higher value from that web site.

### 2.4.4 Demographics

Aldridge *et al.* (1997, p.163) stated that Internet users were "*sophisticated, well-educated, adventuresome consumers with money to spend*". This statement was supported with one empirical study based on a telephone survey, which found that Internet shoppers were older, wealthier, impulsive and more variety seeking than non-Internet shoppers (Donthu and Garcia 1999). This may have been true in the earlier days of the Internet; however, as Internet usage becomes more widespread, this technology seems to have diffused into all sectors of society. In the UK, forty-eight per cent of all households were estimated to have access to the Internet from home in 2003, compared with just nine per cent in 1998. Sixty-four per cent of all adults have used the Internet at least once; and the gender gap seems to be closing with sixty per cent of men and fifty-five per cent of women reporting to have used the Internet in the three months prior to this study (Office for National Statistics 2003). However, levels of Internet access still seem to depend strongly on income, with twelve per cent in the lowest income group and eighty-six per cent in the highest income group.

Monsuwe *et al.* (2004) identified four relevant demographic factors in literature – age, gender, education, and income – that might affect consumers' attitudes to online shopping. Younger adults are more interested in using new technologies such as the Internet, to search for information, compare and evaluate alternatives (Korgaonkar and Wolin 1999; Wood 2002). They also respond more favourably to the entertainment aspect of web sites (Monsuwe *et al.* 2004). However, another empirical study found that age is negatively correlated with Internet messaging and downloading activities, and positively correlated with purchasing activities; which implies that while younger

people tend to use the Internet more frequently, older consumers may have greater purchasing power (Teo 2001).

In terms of gender, empirical studies found that, although the gender gap is closing, men are still more likely to engage in browsing, downloading and purchasing activities compared to women (Korgaonkar and Wolin 1999; Teo 2001; Korgaonkar and Wolin 2002; Kwak *et al.* 2002); and women perceive a higher level of risk in online purchasing than men do (Garbarino and Strahilevitz 2004). However, within the online population, women tend to shop online more frequently than men do (Li *et al.* 1999; Burke 2002).

Level of education is often positively correlated with an individual's level of Internet literacy (Li *et al.* 1999), which makes higher educated consumers more likely to use the Internet for shopping (Burke 2002). However, a different study failed to provide support for the hypothesis that educational level would be positively correlated to usage of computers (Teo 2001). The author provided 'the high level of diffusion of Internet technologies to various sectors of the population' and 'the availability of easy to use browsers' as plausible explanations for this unexpected finding. He also pointed out that 97% of the respondents in this study had at least secondary school education, which would enable them to use the Internet for messaging, downloading or purchasing activities.

The final demographic variable of interest is income. Higher household incomes are often positively correlated with possession of computers, Internet access, and higher education levels of consumers (Lohse *et al.* 2000), which makes these consumers more likely to shop online (Korgaonkar and Wolin 1999; Kwak *et al.* 2002; Monsuwe *et al.* 2004).

While all these studies provided evidence that demographic variables might be relevant in determining consumer attitudes and intentions to shop online, demographics as a research area might be losing its significance as the Internet continues to diffuse as a mass medium across all layers of society. A recent empirical study supported this trend as it showed that demographics did not play an important role in segmenting online shoppers (Bhatnagar and Ghose 2004).

In the present study, demographic data regarding age, gender and education was collected from subjects during the experiments for descriptive purposes. No propositions were made regarding demographic differences, as the random allocation of subjects to different treatment groups during the experiments controlled for the differences in these variables.

### 2.4.5 Empirical studies in online consumer behaviour

One of the earliest empirical studies into consumer attitudes to direct marketing on the Internet surveyed respondents from special interest newsgroups on the Internet and found that consumers react negatively to untargeted 'cyber junk', but are more favourable toward targeted marketing communications in products and services that they are interested in (Mehta and Sivadas 1995). A later study also analysing newsgroup data (Sivadas *et al.* 1998) supported the earlier finding that newsgroup participants tend to be highly involved in their topic of interest and avid consumers of related goods/services. Another early study investigated how consumers behaved during web browsing activities (Raman 1997), and found that users heavily depended on interactive buttons (back button, links to homepage, etc.) to navigate on the Web, which enabled them to exercise control over what they wanted to see. Similar to the first study

mentioned above, Raman's (1997) research also stressed the importance of relevancy and consumer interest in any marketing activity online, as it defined browsing behaviour typically as a "reject unless interesting" activity, where users quickly leave if the homepage does not capture their interest in the first few seconds. As this study was qualitative in nature with a small sample size, the author recommended more extensive testing of findings via experiments or surveys in order to develop a better understanding of how consumers use this medium.

Most of the empirical Internet research that followed these early investigations concentrated on web-based retailing and consumers' intention to shop online or their satisfaction with online retailers. These studies included various factors in their designs, such as product characteristics, transaction efficiency and customer service, ease of use / navigation of the web site, convenience, perceived usefulness and enjoyment of the web site, aesthetic design, atmospheric variables, interactivity, product information and content, situational factors (i.e. time pressure, lack of mobility, geographical distance, need for special items), previous shopping experience, and perceived risk of online shopping / security and trust issues (Dabholkar 1996; Jarvenpaa and Todd 1997; Balabanis and Vassileiou 1999; Chen and Wells 1999; Van den Poel and Leunis 1999; Kaynama and Black 2000; Szymanski and Hise 2000; Childers *et al.* 2001; Coyle and Thorson 2001; Mathwick *et al.* 2001; Vrechopoulos 2001; Yoo and Donthu 2001; Wolfinbarger and Gilly 2001; Athiyaman 2002; Goldsmith and Goldsmith 2002; Griffith and Gray 2002; Janda *et al.* 2002; Mandel and Johnson 2002; Mathwick *et al.* 2002; Menon and Kahn 2002; Luna *et al.* 2003; Park and Kim 2003; Shankar *et al.* 2003; Trocchia and Janda 2003; Bhatnagar and Ghose 2004; Constantinides 2004; Gehrt and Yan 2004; Grewal *et al.* 2004; Kim and Kim 2004; McKinney 2004; Monsuwe *et al.* 2004; Peng *et al.* 2004; Rohm and Swaminathan 2004).

Each of these studies was able to identify one or a few of these factors, but not all of them. These studies were grounded in different conceptual frameworks, and they used different methodologies. There is also a bias towards online retailing, with very little research being done on consumer perceptions and attitudes to non-shopping web sites. The most recent review of literature on online consumer behaviour (Monsuwe *et al.* 2004) noted that, despite the increase in online shopping, research on consumer behaviour has typically been fragmented; and that there is a need for developing and empirically testing conceptual models in this area.

There is also a need for more research into brands and branding online, as most traditional brands use the Internet as a communications medium to build customer relationships, and strengthen brand equity, rather than as a sales channel. The present study fills that gap in the literature by examining interactivity and brand variables in the automotive industry, where online sales are not the priority of the company's web site.

## 2.5 CHAPTER SUMMARY

This literature review chapter started with a brief history of the Internet and World Wide Web, and showed how the Internet became the fastest growing mass communications medium in the world. This medium, which started as non-commercial, has quickly become an additional channel for businesses to promote, communicate and even sell. The commercial opportunities and the typologies of different business models for the Internet were discussed. Due to the unique qualities of the medium, the Internet represents a paradigm shift in marketing. The most commonly discussed traits in the literature were identified as: Availability / Accessibility, Customisation / One-to-one marketing, Interactivity / Two-way communications, Consumer empowerment, "Pull" versus "Push" media / voluntary consumer activity, Disintermediation / New

intermediaries, Global businesses, Real-time information, Reduced costs, and Levelling of prices. These traits represent opportunities as well as challenges for companies who want to take advantage of the Internet fully.

The concept of branding on the Internet, i.e. migrating existing brands online or creating new digital brands, was introduced. There has been little academic research in this area. Most of the conceptual writings are of practitioner origin. The general consensus seems to be that, due to the interactive qualities of the Internet medium, the brand experience becomes more important online than offline; and the deliverable brand promise, good web site design and a sound business model on which the digital brands function are the key components of success. As part of the commercial use of the Internet, electronic commerce was also defined and shown to be growing substantially, despite the gloomy predictions following the so-called 'bubble burst' of the early 2000s.

Finally, consumer behaviour on the Internet was discussed. The concept of the 'new consumer', who is more empowered, and in control, was identified in the literature. This new consumer also has increased expectations from brands and is used to instant gratification enabled by new Internet technologies. How this new consumer actually behaves and buys online has not been researched extensively. The review of recent literature showed that empirical research into online consumer behaviour is still highly fragmented, with a bias towards online retailing.

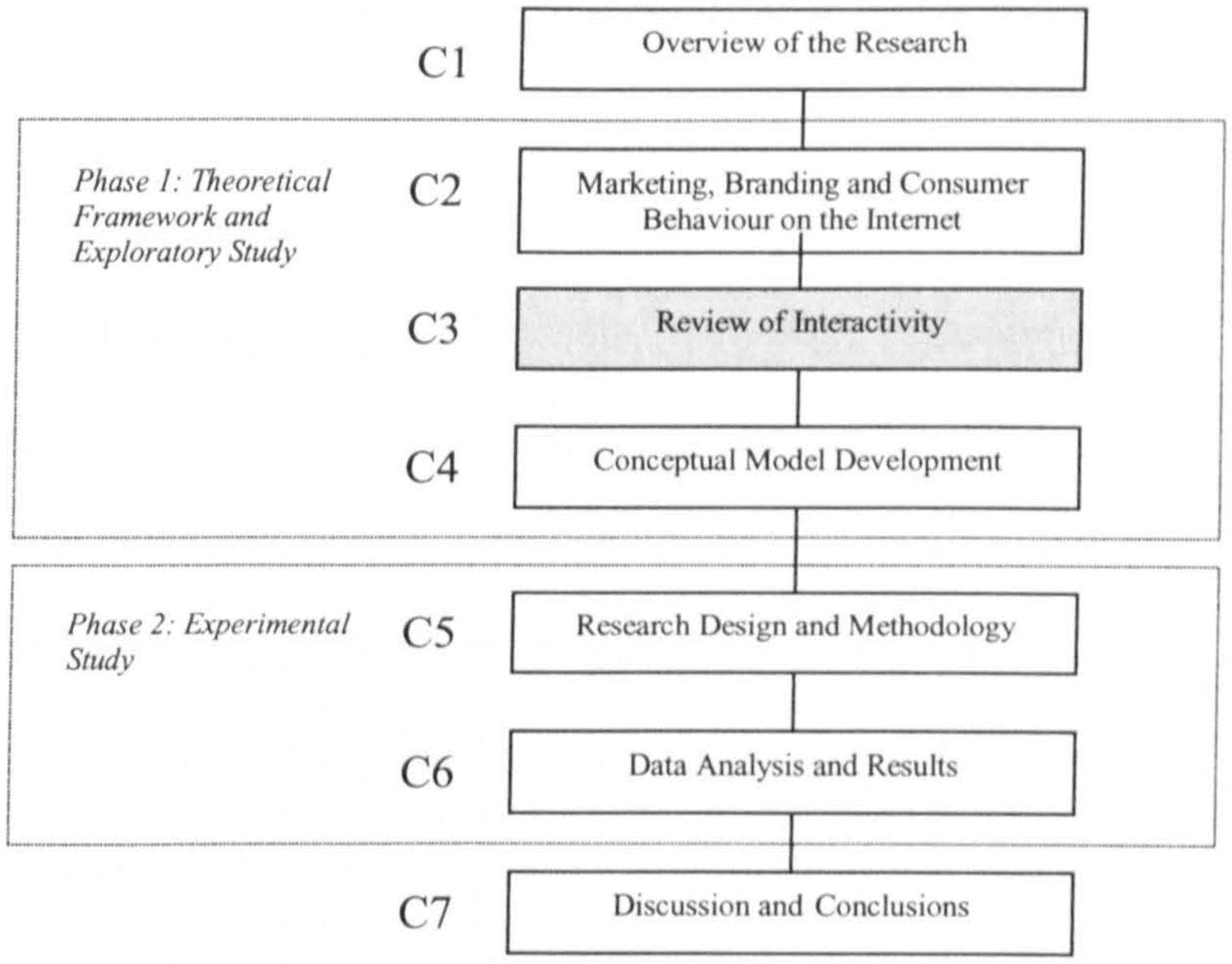
The chapter also cited throughout the origins of the questions asked in exploratory interviews during the first phase of the study.

This literature review from all areas of Internet related marketing, branding and consumer behaviour showed that the unique qualities of the Internet, especially its

interactivity, differentiate it from other forms of marketing media; and that there is need for more empirical research to develop and test new theories. Interactivity empowers consumers by giving them the choice and control over what they receive, and makes them more active and involved in the way they interact with brands online.

This chapter showed that there was limited empirical research into online marketing and consumer behaviour and the role of brands on the Internet. There is even less research into interactivity and the effects of Internet-based applications on consumer-brand relationships. The next chapter will present a comprehensive review of the rather fragmented concept of interactivity and the related empirical data in the literature as interactivity is the overarching theme of this thesis.

# CHAPTER 3. REVIEW OF INTERACTIVITY




## 3.1 INTRODUCTION

Interactivity is the underlying theme throughout this thesis, as the literature review in Chapter 2 identified and the findings from the exploratory phase of this study in Chapter 4 will show this construct to be the most differentiating quality of the Internet medium. In operational terms, interactivity is the core construct; i.e. the independent variable in the conceptual model developed by this researcher. In the experimental phase of the study, the effect of interactivity on consumer interaction with brands on the Internet was tested empirically.

As the concept of interactivity is central to this thesis, it is vital to review and define it conceptually and operationally. Hence, the aim of this chapter is to review the concept of interactivity emerging from various streams of literature, including communications, and marketing and advertising, and to synthesise the definitions and dimensions of this construct. As there is no consensus on its definition in literature, a unified conceptual

definition is also proposed at the end of the chapter. The operationalisation of interactivity, however, will be discussed in Chapter 5, as it is related to research design and measurement issues.

In Section 3.2, communications literatures, including media, journalism, computer-mediated communications (CMC), and Internet specific streams, are reviewed. The communications field was one of the first to discuss the concept of interactivity since the 1980s. Researchers in this field were also the first to define interactivity as a continuum ranging from more interactive to less interactive. The present study adopted this concept of interactivity as a variable on a continuum, when the structural interactivity was operationalised in terms of the number of interactive features (from high to low), and perceived interactivity was measured on a Likert-type interval scale, as will be presented in Chapter 5.

Section 3.3 reviews interactivity in marketing and advertising literature, showing that most scholars used the term rather loosely without attempting to clarify the concept. The common denominator in these writings was that interactivity provides a new marketing opportunity in terms of customisation and relationship building, which was not readily available in traditional marketing. More grounded approaches to studying interactivity, such as McMillan's consistent efforts in conceptually defining and empirically testing the interactivity construct, are also discussed; and dimensions identified from the literature are presented.

In Section 3.4, empirical studies into interactivity will be discussed, with the conclusion that the interactivity of a web site would positively affect consumer response variables. A distinction between structural and perceived interactivity is also made. This distinction played an important role in the way interactivity was operationalised for the

present study, with two separate indicators of interactive features versus perceived interactivity, as will be shown in Chapter 5.

Section 3.5 summarises definitions and dimensions of interactivity identified from the literature, as presented in Table 3-1. These dimensions formed the basis for the proposed definition of interactivity in Section 3.7, and the operationalisation of structural interactivity, i.e. interactive features, later on in Chapter 5. Specific interactive features related to each dimension are also presented in that table, in order to show the contribution of this literature review of interactivity on the operationalisation of this concept later on.

In Section 3.6, interactivity is discriminated from other constructs, namely control, flow, personalisation and speed, which are sometimes wrongly used interchangeably in the literature. This effort was also important for the conceptualisation, and consequently operationalisation, of the interactivity construct. This section establishes that the constructs of "control", "flow" and "speed" are related to but separate from interactivity, and hence, they are excluded from the conceptual definition. Personalisation, on the other hand, is part of interactivity. Unlike some other researchers who simplified and equated interactivity to customisation and personalisation, the present study acknowledges this attribute as part of interactivity, and includes it in the conceptual definition, and later on, in the operational definition.

Finally, in Section 3.7, a unified conceptual definition of interactivity is proposed, following the extensive literature review from all relevant literature streams. This conceptual definition embodied all the dimensions identified from this literature review, (after rejecting the irrelevant attributes as discussed in Section 3.6), which provides a

significant contribution to the literature by bringing together ideas from various literature streams, and capturing the essence of this multitrait concept.

## 3.2 INTERACTIVITY IN COMMUNICATIONS LITERATURE

Interactivity has become the 'buzzword' for the last decade within media, practitioner and academic communities when discussing all technology related advances in communication. The term 'buzzword' here can be defined as "*words, which, within a certain topic, appear to refer to something very important and which – for a given time – are heard constantly, but are often difficult to understand since in reality nobody seems to know what they mean*" (Jensen 1998, p.185). It is almost impossible not to come across the words 'interactive' and / or 'interactivity' in current academic and practitioner literature regarding the Internet and World Wide Web in general.

Academics and practitioners alike widely accept that interactivity differentiates the online medium from other forms of communication even though they do not necessarily agree on its definition. It is generally suggested in various literature streams that interactivity is a key advantage of the Internet medium (Morris and Ogan 1996; Newhagen and Rafaeli 1996; Pavlik 1996; Rafaeli and Sudweeks 1997; Shih 1998; Watson *et al.* 1998; Korgaonkar and Wolin 1999; Haubl and Trifts 2000).

Although usually referring to new technologies, such as the Internet or digital television, and more recently, mobile devices, these concepts can mean different things to different people. Despite being widely talked about, researched or measured in

various research streams, from communications, education[15] and journalism to marketing and advertising, there is no consensus on the definition or operationalisation of interactivity and hence, it still is a 'work-in-progress' area within literature.

Since the 1980s, the concept of interactivity has been frequently talked about in communications, media, journalism, computer-mediated communications (CMC), and Internet specific literature. Everett M. Rogers was one of the first scholars to discuss interactivity within the communications literature. He defined this concept in 1986 as "*the capability of new communication systems (usually containing a computer as one component) to talk back to the user, almost like an individual participating in a conversation*" (Rogers 1986, p.4).

In 1988, Sheizaf Rafaeli, a prominent and widely cited scholar within the field of communications, made an original contribution to the literature, when he defined interaction as: "*an expression of the extent that in a given series of communication exchanges, any third (or later) transmission (or message) is related to the degree to which previous exchanges referred to even earlier transmissions*" (p.111). This definition implicitly incorporates the continuous nature of information exchange and responsiveness between the interacting parties. Rafaeli also pointed out the inadequacy of definitions of interactivity, when he argued that "*Interactivity is a widely used term with an intuitive appeal, but it is an under defined concept. As a way of thinking about communication, it has high face validity, but only narrowly based explication, little consensus on meaning, and only recently emerging empirical verification of actual role*" (Rafaeli 1988, p.110). It is surprising that, almost two decades later, Rafaeli's

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[15] There is a body of literature within the field of education and learning that discusses the influence of interactivity on learning performance or styles, which will not be included in this study, as this field is beyond our domain. However, suffice to say that interactivity is generally accepted to positively influence user attitudes and performance, as recently shown by Kettanurak *et al.* (2001) in their empirical study.

argument about the lack of a clear understanding of interactivity still holds true. This is mainly due to the fact that interactivity is indeed a complex concept. Loose interpretations, overuse of it as a buzzword, inadequate and ungrounded efforts by many researchers in conceptualising and operationalising it, as well as not being able to discriminate it from other closely related but separate constructs did not help the confusion over this complex construct.

Another early conceptualisation of interactivity and related concepts came from Steuer (1992), whose article discussing virtual reality became seminal and widely cited in terms of introducing the concepts of telepresence and vividness in addition to interactivity within the context of computer-mediated communications. Some researchers (e.g. Hoffman and Novak (1996), Griffith and Gray (2002) and Bhatt (2004)) applied his model to their own work in order to understand marketing and advertising on the Internet, which will be discussed in the next section. Steuer (1992) used the term "telepresence", which he defined as "*the experience of presence in an environment by means of a communication medium*" (p.76); and identified 'vividness' and 'interactivity' as the determinants of telepresence. However, Steuer's interpretation of the interactivity construct is rather limited as it refers to "*the extent to which users can participate in modifying the form and content of a mediated environment in real time*" (p.84). Steuer admits that his definition is limited because it does not include control over how the medium can be experienced. However, this is a misguided self-criticism, as the construct of 'control' is in fact a separate construct to interactivity, which will be discussed in section 3.6.1. The real weakness of Steuer's definition is that it overlooks the main attributes of interactivity, such as two-way communication, responsiveness, and the availability of asynchronous communication, which does not need to be real-time. Furthermore, regarding the modification of content, Ha and James (1998) also criticised Steuer's mechanical perspective of interactivity, and claimed that

it was not applicable to the Web, i.e. users of a web site can easily interact with the webmaster of that site without necessarily having to modify the form or content of the web site.

### 3.2.1 Interactivity as a continuum

As early as 1986, when the Internet as we know it today did not even exist, Rogers (1986) developed an interactive model of the communication process, which included different modes of communication, such as face-to-face, TV, other mass broadcast media, electronic mail and teleconferencing. Rogers' model suggested that interactivity was a variable which lay on a continuum where some communication technologies were relatively low in their degree of interactivity (for example television), while others (such as computer bulletin boards) were more interactive.

Subsequent researchers generally agreed with this concept of interactivity as a variable on a continuum. As an experienced researcher in the field, Rafaeli emphasised that interactivity varies along a continuum (1988); and later he concluded that interactivity was a useful theoretical construct for studying computer-mediated communication, and that it was a variable not just a condition (1997). Newhagen and Rafaeli (1996) referred to interactivity as a defining quality of communication on the Internet, and they stated that good choices and clever implementation of interactivity would determine the success of a web site. Morris and Ogan (1996) agreed that anyone conceptualising Internet communications would do well to draw on the variable of interactivity as this concept cuts across the mass versus interpersonal distinctions. These authors also advised to "*consider interactivity to be variable in nature, increasing or decreasing with the particular Internet service in question*" (p.46).

Following a comprehensive review of the history of the concepts of 'interactive' and 'interactivity' in different scientific paradigms, from sociology to informatics to communication and media studies, Jensen (1998) also agreed that the definition of interactivity as a continuum was more appropriate and more flexible in relation to explaining different levels of interactivity within different media, i.e. from television to video games to home shopping and banking. He discussed the various attempts in the literature to explain the dimensions of the interactivity continuum from one-dimensional, i.e. Rogers' (1987) scale from low to high, to multi-dimensional conceptualisation, i.e. Heeter's (1989) six-dimensional concept of interactivity. (Heeter's concept will be discussed in more detail in the next section).

To summarise, there seems to be a consensus within the early communications literature that interactivity is a variable on a continuum. Recent empirical studies accept this early conclusion that there are different degrees of interactivity, and they attempt to operationalise this variable on a continuum, as will be explained throughout this chapter.

## 3.3 INTERACTIVITY IN MARKETING AND ADVERTISING LITERATURE

In their seminal article, Blattberg and Deighton (1991) were the first authors to talk about interactivity within the context of marketing, specifically in terms of database management to track customer preferences and tailor advertising and promotions accordingly. Although they use the term 'interactive marketing', they do not attempt to give a detailed conceptualisation of it, but rather simply equate it to database marketing. However, the authors do identify audience tracking as a key advantage of database marketing, which corresponds to the concept of information collection as identified later by other researchers, e.g. Ha and James (1998).

Duncan and Moriarty (1998) also talked about the impact of interactivity on customer relationships within the marketing context. The authors stated that interactivity is a hallmark of the paradigm shift in both marketing and communication. However, their concept of interactivity was referring to a combination of one-way (e.g. mass media advertising, publicity) and two-way communication (e.g. personal selling, customer service), without mentioning the online environment at all.

The literature that does mention interactivity specifically within the online marketing context is rather limited and mostly conceptual rather than empirical; and mainly refers to interactivity as being the key advantage of the Internet medium. Pavlik (1996) defined interactivity as multidirectional communication between any number of sources and receivers; and stated that the new media age would present consumers with opportunities to become active participants in mediated communications. Watson *et al.* (1998) cited interactivity as the major attribute of the Internet and suggested that good web sites should offer interaction above all else. Kasanoff (1998) defined interactivity simply in terms of having a two-way dialogue with customers. Interactivity allows customers to give instant feedback, which is an important element of relationship marketing (Geller 1998). Pearson (1996) argued that interactivity adds to brands the values of access and responsiveness. Aldridge *et al.* (1997) linked interactivity to the concepts of segmentation and product benefits. The interactivity of the Internet medium allows consumers to choose and customise the messages they see, thus segmenting themselves based on their desired benefits (Aldridge *et al.* 1997). Korgaonkar and Wolin (1999) suggested that the interactivity construct was the most gratifying feature of the Internet medium as perceived by consumers. O'Keefe *et al.* (1998) investigated the success factors for the early adopters of the Web as a retail medium. One of the success factors they identified was the concept of interactivity. However, the authors

admitted that they found this concept hard to define and they suggested the development of a construct for interactivity for further research.

Coviello *et al.* (2001) reviewed the literature on the effect of new technologies on marketing, and they introduced the umbrella term 'IT-enabled interactivity', where the term IT refers to all information and communication technologies applied to marketing practice. However, the authors did not make any explicit attempt to define interactivity or look at other strands of literature, i.e. computer-mediated communications, where there has been numerous works regarding interactivity from a theoretical perspective. Coviello *et al.*'s take on the concept of interactivity is rather pragmatic in terms of marketing applications. The authors then seem to drop the term 'IT-enabled interactivity' in favour of a new terminology, "e-Marketing", which "*involves using the Internet and other interactive technologies to create and mediate dialogue between the firm and identified customers*" (p.26), as they believe it reflects contemporary business language.

As seen in the discussions above, some marketing academics used the term interactivity rather loosely, without defining it or clarifying its domain. The common denominator in these writings is that interactivity, i.e. direct dialogue with customers, gives the firm a new marketing opportunity in terms of customisation and relationship building, which was not readily available in traditional marketing.

To counterbalance the superficial and less meticulous descriptions in the marketing literature, let us now look at the more grounded attempts at conceptualising interactivity within an online marketing context. For example, instead of providing a general speculation about the advantages of interactivity like many other marketing scholars did, Berthon *et al.* (1996) specifically suggested that the level of interactivity on a web

site would be critical in converting site visitors from 'surfers' to 'interactive customers'. Based on this observation, Ghose and Dou (1998) conducted an empirical study to test whether surfers would be more likely to positively evaluate interactive web sites as opposed to less interactive sites with static information and humdrum presentations. Their results supported the hypothesis that the degree and nature of interactivity would have a statistically significant effect on the quality of corporate web sites.

Van Raaij (1998) pointed out that the interactivity concept was not a new phenomenon, as it always played a role in marketing, even prior to the information age, in the form of person interaction; e.g. personal selling. Van Raaij differentiated between three types of interaction: 1) person interaction (personal selling, telemarketing), 2) machine interaction (personalised web sites, electronic auctions), and, 3) database interaction (retrieval of information from databases, electronic reservations). However, since he wrote this article, technology changed fast in terms of the interactivity of web sites, as they can incorporate all three types of these interactions, rather than being just limited to machine interaction. Most web sites these days operate on database interaction, as in its simplest form, a keyword search engine retrieves information from databases. Some web sites, such as airlines, include a call-back option, where consumers can ask to be contacted by a sales representative at a time of their choosing. This means that consumers can have a personal interaction with the company in question whilst still connected to their web site, providing they have a broadband connection to the Internet or have multiple phone lines. To summarise, the concept of interaction via a web site has evolved since Van Raaij's classification due to technology.

In their frequently cited article, Hoffman and Novak (1996) present their many-to-many communication model for hypermedia computer-mediated environments, where interactivity can exist with the medium (i.e. machine interactivity) as well as through

the medium (i.e. person interactivity). They follow Steuer's (1992) model of mediated communication, where information is not merely transmitted from a sender to receiver, but instead mediated environments are created and experienced. Following on from Steuer (1992) and Hoffman and Novak (1996), Bhatt (2004) recently studied virtual reality for commercial web sites, in terms of interactivity, immersion (related to the concept of flow) and connectivity. However, Bhatt's definition of interactivity, i.e. manipulation and customisation of information in a computer-mediated environment, is very narrow; and he fails to differentiate between sender-initiated and receiver-perceived interactivity. Peng *et al.* (2004) used telepresence variables, i.e. interactivity and vividness, in their content perception model, and found support for the positive effect of interactivity on attitude towards the web site. Similarly, Hopkins *et al.*'s (2004) study showed that perceived telepresence plays a significant role on consumer response variables, such as attitude towards the ad, brand attitude and purchase intentions. However, the authors only manipulated the media richness dimension of telepresence, and hence, suggested examining the effects of interactivity on perceived telepresence as a future research area.

Some researchers included the concept of 'speed' in trying to understand interactivity. Shih (1998, p.656) talked about the interactivity construct as a "*feature of cyber technology that distinguishes it from traditional communication technology*" in terms of its ability to respond to user inputs. The author identified 'speed' (instantaneous feedback) and 'control' (the ability to modify) as the dimensions of interactivity. Although Shih (1998) used the term 'speed', his understanding of this concept as the 'quickness of response and feedback' was completely different from Novak *et al.*'s (1999) understanding when they named a variable 'interactivity' in their structural model, simply meaning 'the speed of interaction', i.e. download times on the Internet. Novak *et al.* (1999) used the following three items to measure interactivity: "When I use

the Web there is very little waiting time between my actions and the computer's response", "Interacting with the Web is slow and tedious", "Pages on the web sites I visit usually load quickly". All three items clearly relate to the download times on the Internet in general, and they have nothing to do with the interaction with a specific web site. The authors admit that their "*measure of interactivity is unidimensional and so does not fully capture interactivity*" (p.39).

Other attempts at conceptualising and measuring interactivity within the Internet marketing and branding context will be discussed in section 3.4.

### 3.3.1 Dimensions of Interactivity

In terms of discussing the dimensions of interactivity, the literature seems to be even more limited. One of the most frequently cited works is that of Heeter's (1989). Heeter proposed interactivity as a multidimensional construct in relation to communication technologies; and defined it in terms of six dimensions:

- Complexity of choice, i.e. interactivity in terms of the amount of choice provided to users. This dimension concerns the "*extent to which users are provided with a choice of available information*" (entertaining, persuasive or educational) (p.222).
- User effort refers to "the amount of effort users must exert to access information" (p.222).
- Responsiveness "is the degree to which a medium can react responsively to a user" (p.223).
- Monitoring information use refers to the potential to monitor which information users select, which has implications for customising content to meet user interests. (p.224)

•Ease of adding information refers to "*the degree to which users can add information to the system that a mass, undifferentiated audience can access*" (p.224). Users act as an information source that is carried on a media system to other users.

•Facilitation of interpersonal communication is "*the degree to which a media system facilitates interpersonal communication between specific users*" (p.225). This communication can be either asynchronous (users responding to messages at different time points) or synchronous (users communicating with each other real-time).

Some empirical studies adapted Heeter's dimensions of interactivity in their operationalisation of this construct (McMillan 1998; Massey and Levy 1999; Massey 2000). McMillan (1998) combined Heeter's last two dimensions into a single dimension, which she called 'interpersonal communication'. This makes sense, as users can add information to web sites through bulletin boards, which are interpersonal communication devices enabled by the interactivity of a web site. Hence, in the present study, in addition to Heeter's first four dimensions, McMillan's 'interpersonal communication' dimension was acknowledged and incorporated into the conceptual definition of interactivity.

Alba *et al.* (1997) conceptualised interactivity as a continuous construct capturing the quality of two-way communication between two parties, and identified two dimensions of interactivity as response time and response contingency. By response contingency the authors refer to "*the degree to which the response by one party is a function of the response made by the other party*" (p.38), which actually is similar to the main attributes of interactivity as two-way communication and responsiveness. Iacobucci (1998) attempted to identify properties of interactive marketing, and she identified four content properties (technology, intrinsic motivation, use of information, and real-time aspect of interaction) and four structural properties (customisation, responsiveness,

interaction among groups, and a structure of networked networks, e.g. many-to-many interaction, Intranets) of interactive marketing. She concluded that for a system to be truly interactive all of these eight qualities must facilitate marketing, i.e. new technology allows greater consumer access, using information to provide customer value, tailoring products to specification in response to consumer input. Ha and James (1998) proposed five dimensions for interactivity: playfulness, choice, connectedness, information collection and reciprocal communication. The authors carried out a content analysis of business web sites to measure levels of interactivity based on the presence of interactive devices, such as games, hyperlinks, cookies, contact details etc., for each dimension of interactivity. Ha and James's playfulness dimension is unique, as no other researcher pointed to the importance of the entertaining elements of interactivity. As the entertainment aspect of web sites is important in attracting visitors to a web site and creating value for users, the playfulness dimension will be included in the operationalisation of interactivity in the present study.

Haubl and Trifts (2000) talked about interactivity as a unique characteristic of online shopping environments and as a multidimensional construct with key facets of reciprocity, availability of information, response contingency, customisation of content and real-time feedback. The authors also found that interactive tools might have favourable effects on consumers' purchase decisions. The common dimensions that emerge from these one-off attempts[16] are responsiveness, reciprocity, and customisation, which are not original in the sense that they have been discussed before in different literature streams as explained in previous sections. These dimensions were included in the conceptual definition developed further on in this chapter. As already mentioned before, Ha and James's unique 'playfulness' dimension was also included.

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[16] None of these authors did any further work into interactivity.

One of the few scholars who have consistently researched interactivity within the Internet context is Sally J. McMillan. McMillan has a communications background, and has done a lot of work in conceptualising and operationalising the construct of interactivity (McMillan 1998, 1999, 2000a, 2000b, 2000c; Downes and McMillan 2000; McMillan and Hwang 2002; McMillan *et al.* 2003). Her conceptualisation of interactivity was originally based on Heeter's (1989), model, which formed the basis for later empirical studies that attempted measuring the construct, e.g. Massey and Levy's studies, which had a journalism focus (1999, 2000).

In her earliest study regarding interactivity, McMillan (1998) analysed 395 web sites and surveyed those individuals who managed the creation of content at those sites in order to explore the relationships between interactivity, intellectual property, audience size and funding. She measured the construct of interactivity based on Heeter's dimensions; and she noted that Heeter's definition of interactivity was one of the few that offered specific, measurable dimensions. However, in a subsequent study, she invalidates her previous observations when she declares that her attempts to operationalise Heeter's dimensions had proved unsatisfactory (McMillan 1999). In her later work, McMillan moved away from Heeter's conceptual definition, and attempted to extend her work into understanding the construct of interactivity from a perceived and subjective point of view as well as an objectively measurable construct (McMillan 1999, 2000a, 2000c; McMillan and Hwang 2002).

McMillan also explored the relationships between interactive features of a web site, perceptions of interactivity, attitude towards the site, involvement with the web site and demographic characteristics (McMillan 2000a). She found no significant correlation between interactive functions and perceived interactivity or attitude towards the site;

however, a strong positive correlation was found between perceived interactivity and attitude towards the web site. In another study, McMillan defined interactivity as both process and perception. She operationalised measures of interactive processes based on the interactive features at web sites, and measures of interactive perceptions based on individuals' perception of interactivity at those same sites (McMillan 2000c). She concluded that perception of interactivity seemed stronger than interactive processes in explaining user attitudes and behaviour. Later empirical studies supported this view when 'perceived interactivity' was found to be a better predictor of consumer response variables than structural interactivity (Wu 2000; Yin 2002).

## 3.4 INTERACTIVITY IN EMPIRICAL RESEARCH

There is limited empirical research into the interactivity of the online medium. Apart from McMillan's progressive efforts into conceptualising and operationalising interactivity, most of the other studies into the effects of interactivity in new media come from doctoral theses (Fortin 1997; Bhandari 1998; Macias 2000; Wu 2000; Johnson 2002; Liu 2002; Yin 2002). These authors all pointed out that there was no unified concept of interactivity in the literature, and hence they attempted to define interactivity conceptually and/or operationally. Their attempts resulted in different definitions of interactivity depending on which stream of literature they grounded their efforts in. However, despite the variations in the details of definitions, most of this body of work recognised the difference between interactive features enabled by computer and interactive media technologies (e.g. terms such as 'actual', 'technical' or 'structural' interactivity were used to describe this aspect of interactivity), and 'experiential' or 'perceived' interactivity where consumers subjectively evaluate their perception or experience of an interactive environment. Liu and Shrum (2002) point out the importance of distinguishing between these two aspects of interactivity from a

managerial viewpoint, as this realisation could allow companies to utilise the controllable elements of interactivity and understand the uncontrollable elements, which may produce effects different from company expectations.

It is generally agreed in these doctoral theses that these two aspects of interactivity are separate but related constructs. Whether it was the structural or perceived interactivity that was operationalised for their research, the results from these empirical studies supported the idea that interactivity is beneficial for both the firm and the customer, and it positively influences consumer-level attitudinal and behavioural variables, such as attitude towards the brand and attitude towards the web site.

Thorbjornsen *et al.* (2002) took a more practical approach to interactivity in their experimental study where they compared two types of interactive applications, personalised web sites and customer communities, in terms of their ability to develop consumer-brand relationships. They found that personalised web sites developed stronger consumer-brand relationships for respondents with extensive Internet experience, whereas communities developed stronger relationships among respondents with limited Internet experience. These authors' conceptualisation of interactivity seems to be rather limited, as they only aimed to compare examples of machine interactivity (i.e. personalised web sites) and person interactivity (i.e. customer communities). As discussed earlier, the advanced Internet technologies of today allow complex combinations of person, machine and database interactions between consumers and companies, as well as among consumers themselves. Most major brands offer personalisation and customer communities on their web sites, and hence, in practice, it would be difficult to tell which aspect is more effective in developing consumer-brand relationships. It makes more methodological and practical sense to look at the effects of overall levels of interactivity in a web site.

Griffith and Gray (2002) examined the effects of brand familiarity and web site vividness on consumer response. In conceptualising vividness, they adopted Steuer's (1992, p.81) definition of media vividness, which defines it as "*the representational richness of a mediated environment as defined by its formal features*". A text-only web site is an example of low vivid design while multi-media presentations, such as images, audio, video as well as text on a web site are characteristics of highly vivid web site design. Griffith and Gray (2002) tested and found support for their hypothesis which stated that consumers exposed to highly vivid web site designs would have a more positive response to the brand. Griffith and Gray's (2002) findings are consistent with other interactivity studies in terms of stimulating positive consumer responses. Similarly, Coyle and Thorson (2001) tested the effects of vividness, manipulated as the presence of audio, video and animation in web sites, and found that high levels of vividness helped develop more enduring attitudes towards web sites. Most researchers studying interactive media, such as the Internet, consider media vividness as an inherent part of the interactivity construct. As will be seen in Chapter 5, during the operationalisation of interactivity, the vividness elements, such as audio, video, animation, music, graphics, etc., were identified from the literature and included in the content analysis form.

Srinivasan *et al.* (2002) identified interactivity as one of the antecedents of customer loyalty on the Internet. They used the term 'contact interactivity', referring to "*the dynamic nature of the engagement that occurs between an e-retailer and its customers through its web site*" (p.42). The authors operationally defined contact interactivity as the availability and effectiveness of customer support tools on a web site, and the degree to which two-way communication with customers is facilitated. They proposed that interactivity would be positively related to e-loyalty, and the level of control experienced by the customer, which was supported by data.

Merrilees and Fry (2002, 2003) developed and tested a framework for corporate brand reputation for e-retailers. The authors found that 'e-interactivity', which they define as two-way communication and dialogue, was the main driver of brand attitude and reputation on the Internet.

The most recent empirical studies into the effects of interactivity on web user attitudes and consumer responses, which were not yet published at the time the experimental phase of this study was conducted, also supported the positive effects of interactivity. Teo *et al.*'s (2003) study showed that increased levels of interactivity on a web site would have positive effects on users' perceived satisfaction, effectiveness, efficiency, value and overall attitude towards a web site. Fiore and Jin's (2003) study focused on 'image interactivity', which they defined as the ability to create and manipulate images of a product or environment on a web site, e.g. allowing the user to alter a product's design features, background, or simulate navigation through an environment such as a shopping mall. The results of their experimental study supported the notion that the image interactivity function has a positive influence on consumer responses towards an online retailer.

To summarise, these consistent findings from empirical studies suggest that interactivity of a web site positively affects consumer response variables. As will be discussed in Chapters 6 and 7, empirical results from this study also support these findings, and contribute to existing limited literature on interactivity of the Internet medium and commercial web sites. Furthermore, the present study extends current literature by introducing previously understudied variables within interactivity research, such as brand personality, involvement, expectations and perceived value.

## 3.5 SUMMARY OF DEFINITIONS AND DIMENSIONS IDENTIFIED IN LITERATURE

Table 3-1 below summarises different definitions and dimensions of the interactivity construct as identified throughout this chapter. A cross-referencing of the individual interactive features identified under each dimension in Chapter 5 is also given to demonstrate the contribution of this chapter to the operationalisation of structural interactivity.

**Table 3-1 Summary of the definitions and dimensions of the interactivity construct**

| Definition / Dimension (with detailed description) | Source (s) | Related interactive features as identified in Chapter 5 (please refer to Table 5-1 for cross-referencing) |
|---|---|---|
| **Choice**<br><br>Complexity of choice offered to users. The assumption is that consumers will experience greater interactivity when more choice is provided. | Heeter (1989); Ha & James (1998); McMillan (1998); Massey & Levy (1999) | - Text-only navigation or no-frames option<br>- Browser compatibility information/option<br>- Language / Country choice<br>- Shopping online<br>- Site index / site map<br>- Menu bar on first page<br>- Menu bar on subsequent pages<br>- Hot links back to home page<br>- Channel support<br>- Quick ordering option<br>- Alternative payment options |

| Definition / Dimension (with detailed description) | Source (s) | Related interactive features as identified in Chapter 5 (please refer to Table 5-1 for cross-referencing) |
|---|---|---|
| **Continuous exchange of information**<br><br>Interactive capabilities of a communications medium allow users to exchange information seamlessly and continuously. | Rafaeli (1988); Haubl and Trifts (2000) | - Product / service information<br>- General corporate information<br>- E-mail updates / newsletters<br>- Security information<br>- Privacy information<br>- Ordering information<br>- Help button<br>- FAQ's section<br>- Pricing and availability<br>- Delivery information<br>- Returns policy<br>- Hit counter<br>- Publication date |
| **Control**<br><br>The ability of the user to control and modify messages. Web users' control over their interaction with the medium is active and voluntary based on their personal preferences. | Rogers (1995); Shih (1998); Korgaonkar & Wolin (1999); Downes & McMillan (2000); Steuer (1992); Liu and Shrum (2002) | Please note that control was discriminated from interactivity in the present study (Refer to section 3.6.1) Hence, there are no interactive features related to control. |
| **Customisation/Personalisation**<br><br>The interactivity of the Internet medium allows consumers to choose and customise the messages they receive, or the form and content of the web site they see, based on their personal preferences. | Blattberg and Deighton (1991); Aldridge *et al.* (1997); Iacobucci (1998); Haubl and Trifts (2000); Liu and Shrum (2002) | - Information on stores / dealers<br>- Customised products / services<br>- Web site personalisation<br>- "Your account" / "Log in" button<br>- Shopping basket / trolley<br>- Order tracking<br>- Other improvements on customer service<br>- Cookies |
| **Effort users exert**<br><br>This dimension represents the amount of effort users must exert to access information, i.e. the more effort a user must exert; the more interactive they perceive the medium to be. | Heeter (1989); McMillan (1998) | - Search engines<br>- Registration forms<br>- Customer support / service area |

| Definition / Dimension (with detailed description) | Source (s) | Related interactive features as identified in Chapter 5 (please refer to Table 5-1 for cross-referencing) |
|---|---|---|
| **Instant feedback**<br><br>Interactivity allows customers to give instant feedback, which is an important element of relationship marketing. | Geller (1998); Shih (1998); Haubl and Trifts (2000) | - Online forms (for feedback, complaints, etc.) |
| **Interpersonal communication**<br><br>Facilitation of interpersonal communication can occur where marketers allow their web sites to be used as conduits through which consumers engage each other personally. | Heeter (1989); McMillan (1998); Iacobucci (1998); Massey & Levy (1999) | - Chat rooms / synchronous discussion<br>- Newsgroups/ asynchronous discussion<br>- Bulleting Board<br>- Other ways for users to add / share information |
| **Monitoring information use**<br><br>This dimension refers to the potential to monitor which information users select. This could have implications for customising content to meet user interests. | Heeter (1989); Ha & James (1998); McMillan (1998); Massey & Levy (1999) | - Search engines<br>- Cookies |
| **Playfulness**<br><br>This dimension refers to the entertainment aspect of interactivity, such as online interactive games. | Ha & James (1998) | - Promotional content<br>- Entertaining content |
| **Responsiveness**<br><br>Responsiveness to the user, where marketers can engage individual consumers through the Internet's technology. This kind of communication can be synchronous, or real-time such as chat rooms or instant messaging, or asynchronous, or delayed, such as bulletin boards or e-mail. | Rogers (1986); Rafaeli (1988); Heeter (1989); Pearson (1996); Alba *et al.* (1997); Shih (1998); Ha & James (1998); Iacobucci (1998); Massey and Levy (1999), Downes & McMillan (2000), Haubl and Trifts (2000) | - Chat rooms / synchronous discussion<br>- Newsgroups/ asynchronous discussion<br>- Bulleting Board<br>- Other ways for users to add / share information |
| **Speed**<br><br>The speed of instantaneous feedback or simply the download speed of a web site. | Shih (1998); Novak *et al.* (1999) | Please note that speed was discriminated from interactivity in the present study (Refer to section 3.6.4) Hence, there are no interactive features related to speed. |

| Definition / Dimension (with detailed description) | Source (s) | Related interactive features as identified in Chapter 5 (please refer to Table 5-1 for cross-referencing) |
|---|---|---|
| **Two-way communication / Reciprocity**<br><br>Refers to the ability of the medium for reciprocal communication between companies and users, as well as among users themselves. | Alba *et al.* (1997); Kasanoff (1998); Haubl and Trifts (2000); Liu and Shrum (2002) | - Customer survey / questionnaire<br>- Contact information<br>- Free-phone number / Callback option |
| **Variable along a continuum**<br><br>This concept refers to interactivity being a variable along a continuum from low to high, rather than just a condition. | Rogers (1986); Rafaeli and Sudweeks (1997); Jensen (1998) | Present study adopted this concept of interactivity as a variable on a continuum, when the structural interactivity was operationalised in terms of the number of interactive features (from high to low), and perceived interactivity was measured on a Likert-type interval scale, as will be presented in Chapter 5. |
| **Vividness**<br><br>Refers to the representational richness of a mediated environment as defined by its formal features, such as audio, video, sound, animation, etc. | Steuer (1992); Hoffman and Novak (1996); Coyle and Thorson (2001); Griffith and Gray (2002); Peng *et al.* (2004); Hopkins *et al.* (2004) | - Audio / Video |

All these definitions and dimensions, with the exception of control and speed, are relevant in the investigation of the interactivity construct. The concepts of control and speed need to be discriminated, as they are related but separate constructs to interactivity, as explained in the section below. The rest of the definitions and dimensions identified from literature were all taken into consideration in defining interactivity in Section 3.7, as well as operationalising it in Chapter 5.

## 3.6 DISCRIMINATION OF INTERACTIVITY FROM OTHER CONSTRUCTS

In their attempts to conceptualise the complex construct of interactivity, many researchers tended to include other separate but related constructs in their definitions. The most commonly mentioned constructs as part of or in relation to interactivity are 'control', 'flow', 'personalisation/customisation' and 'speed'. In order to reach a clear understanding of interactivity, it is important to discriminate it from these related but distinct constructs.

### 3.6.1 Interactivity and Control

The most frequently mentioned construct when discussing interactivity is 'control'. The term control here refers to the user control that can be exercised whilst interacting with computers. One of the earliest references to control comes from Steuer (1992), who defined interactivity from a user-message interaction perspective as the ability of the user to control and modify messages. As mentioned before, Shih (1998) also identified control, i.e. the ability to modify, as one of the dimensions of interactivity. Rogers (1995) also identifies control over mutual discourse as a key element of interactivity. Similarly, Korgaonkar and Wolin (1999) relate interactivity and control because the interactivity element gives the Internet users more control of the medium. Liu and Shrum (2002) identify 'active control' as one of the dimensions of interactivity, and they point that "*active control is characterised by voluntary and instrumental action that directly influences the controller's experience*" (p.54). The authors emphasise the nonlinear structure of the Internet, which allows users to customise the information flow and jump from one location in the network to another. They also point out the voluntary nature of the control and interaction on the Internet, where users control their

experience based on their own preferences and volition. Shankar *et al.* (2003) combine the constructs of 'control' and 'customisation' whilst talking about the interactivity of a web site, when they point out that "*a well designed interactive web site could generate higher satisfaction by providing greater control to customers to personalise the information search*" (p.159).

Although all these comments are valid and apply to the interaction process and user experience on the Internet, it is important to acknowledge that 'control' is a separate theoretical construct and therefore should be discriminated from interactivity. As the construct of control, or more specifically 'perceived control' emerged as an important factor in online consumer response, from both the literature review and the exploratory interviews, it was included in the conceptual model developed for this study. Further details will be given in chapter 4 (as a variable in the conceptual model) and chapter 5 (in terms of operationalising the 'perceived control' variable for the experimental study).

### 3.6.2 Interactivity and Flow

The construct of 'flow' is mentioned by some researchers instead of or in relation to interactivity. Csikszentmihalyi (1975) first defined flow as "*the holistic experience that people feel when they act with total involvement*" (p.36); and identified four dimensions to flow as control, attention, curiosity and intrinsic interest. Based on Csikszentmihalyi's (1975) definition, Hoffman and Novak (1996) identified 'flow' as a key characteristic of the hypermedia computer-mediated environments. The authors suggested that creating compelling consumer experiences in an online environment would depend on facilitating a state of flow. Hoffman and Novak (1996) defined flow as "*the state occurring during network navigation which is (a) characterised by a*

*seamless sequence of responses facilitated by machine interactivity, (b) intrinsically enjoyable, (c) accompanied by a loss of self-consciousness, and (d) self-reinforcing*" (p. 57). The authors identified a set of key constructs related to flow, including interactivity, involvement, focused attention, skill, control, challenge, arousal, telepresence, time distortion, and exploratory behaviour. Although Hoffman and Novak's (1996) work was seminal in terms of identifying important factors in consumer behaviour online, it was not without flaws. For example, Rosen and Purinton (2004) criticise Hoffman and Novak's (1996) conceptualisation of flow as these authors combined interactivity, which is the means to achieve flow, with the psychological aspects of flow in their construct. This indicates that interactivity might be an antecedent to flow, or a means to achieve it, rather than a part or consequence of it. Rettie (2001) supports this view when she points out that designing sites with increased interactivity would promote flow. Merrilees and Fry (2003) add to this argument by showing that Hoffman and Novak's concept of flow is in fact another type of interaction, which is a narrow and extreme subset of interactivity. Chen and Chang (2003) assert that interactivity is one of the conditions for achieving flow. Most recent empirical research supports these arguments, as it shows that interactivity, mediated by attitude towards the web site, is an antecedent to flow (Luna *et al.* 2003). As seen from the discussion above, flow is clearly a different construct from interactivity, if not a subset of it; and hence, it would be misleading to use these two constructs interchangeably.

To empirically test Hoffman and Novak's (1996) conceptual model, Novak *et al.*(2000) attempted to measure the flow construct with a structural modelling approach for the Web in general, rather than for specific web sites. However, not only did the authors fail to discriminate between flow and interactivity, they also operationalised interactivity simply as 'download speed of a web site', which they admit as a limitation. Rettie

(2001) criticised Novak *et al.*'s (2000) work from a different angle, by pointing out that Novak *et al.*'s generalised approach[17] conflicted with Csikszentmihalyi's (1975) situation specific use of the flow concept. Novak *et al.* (2000) argue that consumers can achieve states of flow on the Web whereby "*self-consciousness disappears; the consumer's sense of time becomes distorted...*" (p.22). However, the authors also point out that flow would be more likely to occur during fun, recreational and experiential activities than with work or task-oriented activities. In other words, flow online can be achieved in personal and recreational use of the Internet, such as online games, online gambling, chat rooms, and hobby-related personal web pages, and online auctions, etc., but not necessarily during task-oriented activities, such as information search, reading online news or articles, or even online shopping. When consumers visit commercial web sites for the purposes of browsing, shopping, information gathering or even participating in the brand's online community, they are likely to experience more control and involvement through the interactivity of the site, but not to a degree where their surrounding physical environment loses significance.

In addition to the fact that flow is clearly a different construct than interactivity, it can also be argued that the construct of interactivity is more relevant than the construct of flow in understanding consumer behaviour online within the context of commercial web sites, though flow might be more relevant in more recreational aspects of online behaviour.

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[17] Respondents in Novak *et al*'s (2000) study were asked about their general experience of Internet use rather than a particular experience.

### 3.6.3 Interactivity and Personalisation / Customisation

As shown in section 3.3, Blattberg and Deighton (1991) were the first authors to talk about customisation enabled by database marketing within the context of interactive marketing. Although their article was seminal in terms of bringing the terms 'interactive' and 'interactivity' to the attention of marketing scholars and practitioners, their conceptualisation of these concepts was rather limited and seemed to equate them to personalising customer offerings; and segmenting and targeting certain customer groups allowed by database marketing. Aldridge *et al.* (1997) followed in their footsteps, when they also linked interactivity with the concepts of customisation and segmentation. These authors simplify the concept of interactivity by equating it to the possibility of personalising and customising the customer offerings based on their preferences. Although the concepts of personalisation and customisation are vital components of the complex construct of interactivity, it is important to acknowledge that they are only the parts of a greater sum.

### 3.6.4 Interactivity and Speed

Some researchers mentioned 'speed' in their discussions of interactivity. However, in doing so, different people meant different concepts. For example, while Shih (1998) was referring to the speed of instantaneous feedback, Novak *et al.* (1999) were simply talking about the download speed of a web site. In either case, these concepts are entirely irrelevant to discussions of interactivity. Although feedback is an important part of responsiveness and reciprocity, in practice, it can take place either instantly in real-time, or delayed, in the form of asynchronous communication, e.g. bulletin boards, customer feedback forms, which make the speed irrelevant. Download speeds of web sites is entirely a technical issue which may or may not originate from the actual web

site, and may be the result of a combination of technical restrictions, such as the users' Internet connection type, the Internet traffic load at that particular time, or the design complexity of the web site, which are all entirely separate from the interactivity construct.

## 3.7 A UNIFIED CONCEPTUAL DEFINITION OF INTERACTIVITY

Based on the literature review presented in this chapter, the following unified and synthesised conceptual definition of interactivity for the Internet context is proposed:

> **Interactivity of a web site is (a) the degree to which it allows one or more users to communicate with one or many other users or devices as senders or receivers of messages, as facilitated by the structural capabilities of the system (in the form of Internet technologies and functionalities that give the users information and entertainment choice and tools to customise the form and content, facilitate information exchange and interpersonal communication), either in real-time (as in chat rooms or video teleconferencing) or asynchronously (as with e-mail or messages posted in bulletin boards and forums), and (b) the subjective and experiential assessment of the structural capabilities and functionalities described in (a) as perceived by the users of the web site.**

The above Internet context-specific definition brings together ideas from various literature streams, and captures the essence of this multitrait concept. One of the important contributions of this chapter is the synthesis of this conceptual definition of interactivity, which incorporates all the dimensions of this constructs identified from literature as presented in Table 3-1. Based on this conceptual definition, interactivity construct was operationalised with two indicators in Chapter 5, i.e. structural

interactivity in terms of the number of interactive features, and perceived interactivity, in terms of how these structural features are perceived by the users of the web site.

As seen from the discussion so far, interactivity is generally accepted in the literature to be a positive trait of new technologies. The assumption that interactivity draws Internet users to web sites is central to many studies in this field (Bhandari 1998; Massey 2000; Macias 2000, 2003). It has been empirically shown that consumers respond favourably to web sites, which are highly interactive, or perceived to be highly interactive (Fortin 1997; Wu 1999; Macias 2000; Wu 2000; Johnson 2002; Yin 2002).

Supported by literature as well as the empirical data from exploratory interviews, which follows in Chapter 4, it is proposed that interactivity is a core construct, which lies at the centre of the analysis of consumer-brand interactions on the Internet. The implications and extensions of this proposition will be discussed in detail in Chapters 4 and 5, with reference to the conceptual model of consumer-brand interaction developed by this researcher.

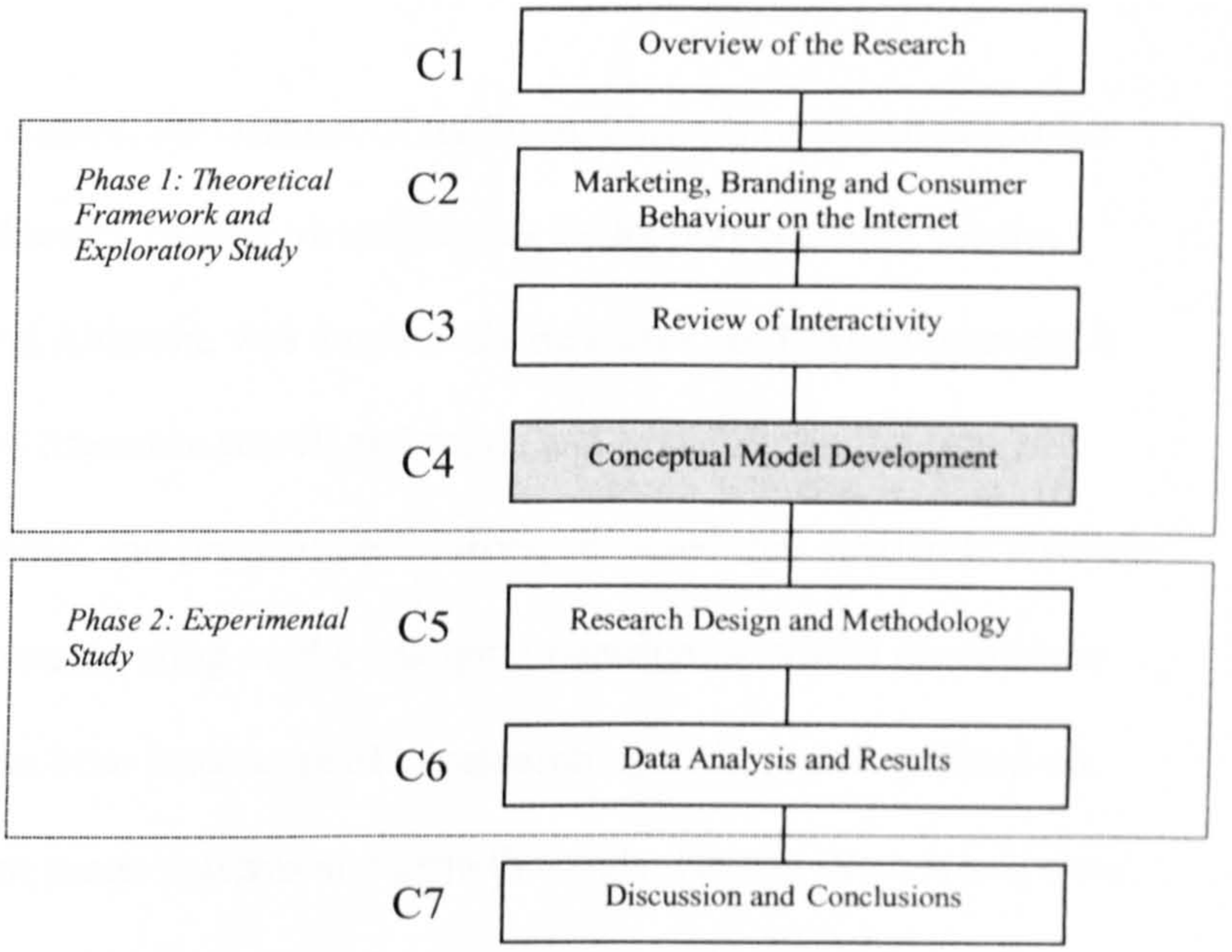
## 3.8 CHAPTER SUMMARY

This chapter opened by explaining the frequent mention of the concept of interactivity in both academic and practitioner literature regarding new technologies or communications in general without a consensus on the conceptual or operational definition of it. The subsequent sections reviewed different streams of literature, which discussed, defined, researched or measured the interactivity construct. Based on this extensive review of the communications, journalism, marketing and advertising literature streams, a unified and synthesised Internet-specific conceptual definition of this construct was developed. Interactivity was also discriminated from other constructs,

i.e. control, flow, personalisation / customisation, and speed, with which they are often confused in the literature.

The next chapter will present the findings from the exploratory phase of this study, where the construct of interactivity emerged as the core construct in the conceptual model. Chapter 5 will present the operationalisation of the interactivity construct for the purposes of the quantitative phase of this study.

# CHAPTER 4. CONCEPTUAL MODEL DEVELOPMENT




## 4.1 INTRODUCTION

This chapter aims to develop an original model of consumer-brand interaction on the Internet grounded in depth interview data as well as literature. Section 4.2 explains the background and rationale for the exploratory study conducted early on in the life of this project. Section 4.3 gives an overview of the grounded theory methodology. In Section 4.4, research findings under the open, axial and selective coding stages of analyses are presented, along with the textual and graphical representations of the evolving conceptual models. The relationships between the model constructs are given as explicit propositions in Section 4.5. A summary of these propositions are listed in Section 4.6.

## 4.2 BACKGROUND AND RATIONALE FOR THE EXPLORATORY STUDY

When this research study started, the concept of traditional brands extending onto the Internet as an additional channel, or new virtual brands being purpose-built for the Internet, such as Yahoo and Amazon, was a relatively new area; and existing research was very limited. An initial literature search on brands and branding on the Internet conducted from both academic and practitioner sources, revealed that academic articles were mostly conceptual, concentrating on the changing paradigms, whilst practitioner research, e.g. empirical data from Internet market research agencies, concentrated on statistical information about usage patterns and growth trends. Hence, there was a clear need for developing conceptual models for understanding the role of brands on the Internet.

Dubin (1978, p.14) states that the purpose of building theories or models is to "*provide understanding and to make predictions about the future states of affairs*". Due to the emerging nature of the area and the need for developing a model that is grounded in empirical data, Glaser and Strauss's grounded theory approach was followed (Glaser and Strauss 1967). Grounded theory methods are particularly suitable for developing theory for a new phenomenon or in areas where little work exists (Glaser and Strauss 1967; Strauss 1987; Goulding 1999).

Various experts from the field of new media communications were interviewed for this exploratory study. The data was analysed following the general guidelines of grounded theory. The findings from these exploratory interviews, supported by literature, provided the basis for the development of a conceptual model and related hypotheses

tested in the second phase of the study. The following sections in this chapter will explain the grounded theory methodology and the qualitative findings from this approach in detail.

## 4.3 EXPLORATORY RESEARCH METHODOLOGY

This section will explain the sampling, coding and analysis procedures adopted for this exploratory study under the grounded theory methodology guidelines.

### 4.3.1 Overview of grounded theory methodology

Grounded theory methodology was first presented by sociologists Barney Glaser and Anselm Strauss in their 1967 book, *The Discovery of Grounded Theory: Strategies for Qualitative Research*, which provided the rationale and guidelines for using qualitative methods to generate testable, relevant and valid theory in emerging areas of research. Glaser and Strauss continued developing grounded theory methods and applications, and published several books and articles on the subject (Strauss 1987; Corbin and Strauss 1990; Strauss and Corbin 1997, 1998; Glaser 1999). Grounded theory methods introduce inductive strategies for analysing data, starting with individual cases, or incidents, and systematically developing conceptual categories to synthesise data, and identify patterns and relationships within it (Charmaz 1995).

Grounded theory methodology makes use of three different stages of analysis for data reduction and conceptual model and proposition development. These stages will be briefly defined below.

#### 4.3.1.1 Open Coding

Strauss and Corbin (1998, p.101) define open coding as "*the analytic process through which concepts are identified and their properties and dimensions are discovered in data*". Concepts derived from data are organised into categories and subcategories, which can have names borrowed from literature, or 'in vivo' (quoted directly from respondents). Through conceptualising similar items into categories and specifying dimensions, one begins to see patterns in data, which can build the foundation for theory building.

#### 4.3.1.2 Axial Coding

Axial coding is "*the act of relating categories to subcategories along the lines of their properties and dimensions*" (Strauss and Corbin 1998, p.124). This process is called 'axial coding' because the analyst aims to build up a dense texture of relationships around the 'axis' of the category being focused upon (Strauss 1987, p.64). More specifically, it involves dimensionalising a category, specifying varieties of conditions, interactions, strategies and consequences, and finally relating it to other categories (Strauss 1987).

According to Strauss and Corbin (1998), the purpose of axial coding is to "*begin the process of reassembling data that were fractured during open coding*". In summary, categories are related to their subcategories to form more precise and complete explanations about phenomena.

#### 4.3.1.3 Selective Coding

Selective coding is "*the process of integrating and refining the theory*" (Strauss and Corbin 1998, p.143). Several techniques can be used during this integration process, including telling the storyline, using diagrams and computer programs. Once the theoretical scheme is outlined, the analyst makes excess or irrelevant categories redundant, or fills in the poorly developed ones through further theoretical sampling. Theoretical saturation is reached when no new properties, dimensions or relationships emerge during analysis.

The final theory can be validated by comparing it to raw data or presenting it to respondents, who should be able to recognise not every detail but the larger concepts.

The details of the coding of data under these three stages will be explained in the Exploratory Research Findings section 4.4. The actual codes generated under each stage can be found in Appendix 1b.

### 4.3.2 Sampling and the Interviewing Process

Theoretical sampling was utilised in choosing the respondents for the interviews. Strauss and Corbin (1998, p.201) define theoretical sampling as: "*data gathering driven by concepts derived from the evolving theory and based on the concept of 'making comparisons', whose purpose is* ***to go to places, people or events that will maximise opportunities to discover variations*** *among concepts and to densify categories in terms of their properties and dimensions*". Hence, a combination of new media experts with

different levels of agency, academic, journalist and freelance consultant backgrounds were chosen to add richness and variation to data.

The grounded theory approach does not recommend a specific sample size. Grounded theorist should ideally start analysing and coding during the research process, and keep sampling further respondents until categories are fully developed and conceptually saturated (Glaser and Strauss 1967). However, due to access problems to organisations and time restrictions, it was necessary to arrange most of the interviews at the beginning of the research process. Therefore, it was decided to follow Kvale's (1996, p.102) advice, which states that, "*In current interview studies, the number of interviews tends to be around 15 +/- 10. This number may be due to a combination of the time and resources available for the investigation and of the law of diminishing returns*". Theoretical saturation was reached after the fifteenth interview, when it was found that additional data did not contribute to developing new categories.

In order to satisfy the requirement of 'maximising opportunities to discover variations' within the grounded theory approach, respondents with different positions and/or seniority from a wide range of organisations were interviewed. These respondents came from small to medium size new media agencies (7), international advertising agencies and/or their new media divisions/sister companies (3), virtual companies/publications (2), academic institution (1) and freelance (1). New media agencies were selected because they designed web sites and helped create online branding strategies for their clients. During the early years of the online medium as a commercial vehicle, traditional marketers within companies did not possess the necessary skills and knowledge required for the new interactive environment (Lord 1997; Scott 1998). Hence, the

agencies they employed were influential in the overall strategic direction of the companies' online agenda.

To provide variety in the data, a mixture of agencies, from small, entrepreneurial ones to specialised divisions or sister companies of large, international advertising agencies, were chosen. The individual respondents also varied from 'Digital Planner' to 'President CEO'. The academic respondent and the authors were selected because of their expertise in branding in general, and their conceptual publications regarding the new media. The other two respondents, who were owners of virtual businesses and editors of online publications, provided a more entrepreneurial perspective and variety of data for the research.

The job titles and expertise details of the interviewees (in chronological order by interview dates) were as follows:

1) **Projects Director** in the digital communications branch of a major international advertising agency (established in 1996). This interviewee has a long career in marketing, advertising and branding; and at the time of the interview, she was leading the development of the digital communications, advertising, and web site building activities for their clients. This agency's clients for Internet related activities at the time of the interview included well-known brands, such as Toyota, Hewlett Packard, Cheltenham & Gloucester and Lloyds TSB. Overall, this respondent provided web site branding expertise and a senior management view on the agency side.

2) **Global Director of Planning** in a major international advertising agency (one of the biggest in the world with a very long history). This interviewee has a long career in

marketing, advertising and branding. Although this respondent did not have a direct, hands-on Internet related experience, she provided the most senior management view and agency-side branding expertise among respondents. Clients of this agency include very strong brands such as Coca-Cola, GM's Cadillac and Pontiac brands, Procter & Gamble, Burger King, and M&M Mars.

**3) Editor of a new media publication and writer of digital branding.** This respondent was one of the few people in the UK writing about Internet branding at the time of the interviews. He has been a business journalist and commentator for 20 years, writing for The Independent on Sunday, The Independent, Revolution and The Financial Times, and was twice named Industrial Journalist of the Year. At the time of the interview, this respondent was writing a weekly column about online brands in Revolution, which was a prominent new media publication at the time. He also acted as one of the judges in that publication's yearly digital media awards for two consecutive years in 1997 and 1998. This interviewee also published his own subscription-only non-technical Internet newsletter regarding online marketing and branding strategies aimed at senior managers.

4) **President CEO** of the London office of a US new media agency (established in 1997). This interviewee has a long career in management and is of American origin. The US has a longer history and more experience of commercial Internet use; hence, this respondent provided the North American perspective into branding online. Their clients at the time of the interview included HMV, Xerox, Time Warner, 20th Century Fox and CNN.

5) **Professor of Management and Marketing** in a prominent business school in the UK. This interviewee was selected due to his interest and expertise in branding in general, and new media communications in specific, in order to provide an academic perspective and theoretical richness to our data. At the time of the interview, he had published several articles regarding the new media in both academic and trade publications. He was also the director of the Centre for Marketing and chairman of the specialist new media research centre at his university.

6) **Strategic Solutions Director** of a leading edge new media agency (established in 1995). At the time of the interview, this agency's client list included FT.com, Virgin Clothing, Castlemaine, Mars Confectionery, Pepsi, Fiat, Elida Gibbs, RAC and Yell. The RAC web site won Revolution's 1998 'Best Use of New Media in an Integrated Marketing Campaign Award'. This interviewee was a frequent speaker in industry events, and was involved in some groundbreaking UK new-media projects, including Screentrade, which was the first web site offering comparison and purchase of insurance quotes; and the early development of Yell. He also acted as one of the panel judges for the 1997 Revolution New Media Awards.

7) **Digital Business Manager** of the interactive arm of an international advertising agency (established in 1998). This interviewee had a middle management role rather than senior management. This added variation to data, which otherwise came mostly from more senior respondents. Although, in his own words, this respondent was not "*a strategic, planning type of person*", he provided considerable input into the study, in terms of pointing out the importance of the brand personality construct and the need for creating unique added values online. He also provided information about the evolution of web site development from a practitioner perspective. This agency's client list at the

time of the interview included Peperami, Nat West, Mini, Compaq, Johnson & Johnson, Nestle and P&O Cruises.

8) **Chairman** of a leading edge business development consultancy specialising in interactive digital media (established in 1997). Their clients included Abbey National, BT, Carphone Warehouse, RSPB, Royal and Sun Alliance, Eurostar and Railtrack. At the time of the interview, this respondent was a prominent practitioner expert on brands on the Internet; and hence, was a frequent speaker in new media conferences and seminars, and a frequent interviewee in trade publications. Being a graduate of Cambridge and Cranfield School of Management, he also had a solid academic grounding in marketing and management.

9) **Managing Director** of an international new media agency (established in 1994). This interviewee is originally from Canada, and has a long career in publishing and media. The US and Canada have a longer history and more experience of commercial Internet use, hence this respondent provided the North American perspective into branding online. This interviewee set up this interactive arm of an international ad agency, in order to get new Internet clients from a relatively early stage in the development of UK new media. He also acted as one of the judges in 1999 Revolution Awards for New Media Marketing. The company's clients included Shell, Cable & Wireless, Regaine, CenterParcs, Amnesty International and Foreign & Commonwealth Office.

10) **Managing Director** of a leading edge new media agency (established in 1994). Their client list at the time of the interview included strong brands such as BMW, Mini, Nike, Sainsbury's, Carlsberg, Orange and Durex; and they were the largest independent

new media services company. The company won the 1999 Revolution Award for Best Integrated Campaign for Microsoft Hotmail.

11 & 12) **Digital Planning Manager** and **Digital Planner** of the interactive arm of one of the biggest global marketing and communications agencies (established in 1994). These two interviewees were working as a team in middle management rather than senior management; hence, they provided a more hands-on perspective from their day-to-day dealings with clients. They supported their arguments with many real life examples of brand web sites. Their agency's client list at the time of the interviews included well-known brands such as IBM ebusiness, Argos, BarclaySquare, Huggies and Walls ice cream.

13) **Chief Executive** of an independent UK new media agency (established in 1995). This interviewee provided very valuable insight into paradigm shifts and business models, as well as consumer behaviour issues, such as the importance of the concept of raised consumer expectations on the Internet. Their clients at the time of the interview included Tesco, Dixons, Electronic Telegraph, NSPCC, Legal & General, Merck, and Alfred Dunhill.

14) **Freelance journalist, author and brand consultant.** This interviewee was selected due to his long career in marketing and branding, and his specific interest in new media. He is a business writer, a contributing editor to *Marketing Week,* and editor of *Marketing* magazine. He is also the author of a Financial Times report, which introduced groundbreaking ideas regarding marketing and branding strategies in the new digital era. This report provided the basis for the some of the questions relating to

paradigm shifts, business models and the concept of the 'new consumer' for these interviews.

15) **Managing Editor and Internet Consultant.** This interviewee was chosen due to his extensive Internet experience and his entrepreneurial insight. At the time of the interview, he had been publishing a free subscription Internet newsletter for almost two years. This newsletter was aimed at information researchers, and had become a strong 'word of mouth' brand with over twenty thousand subscribers at the time of the interview. This interviewee offered his insight and experience into building this virtual brand on the Internet.

Depth interviews, as defined by Gordon and Langmaid (1988), were conducted, tape-recorded, and subsequently transcribed. The authors define depth interviews as *"lasting approximately one hour; tape recorded; orientated to penetrating below the superficial question-and-answer format of structured or semi-structured questionnaires; rapport building in order to facilitate the expression of heartfelt responses*" (p.15). The interviews lasted about one hour on average, and were conducted face-to-face in the experts' working locations, with one exception being a telephone interview. Although a topic guide[18] was used, the interviewing process was unstructured and open-ended.

### 4.3.3 Verification of the coding procedure

A fellow researcher independently verified coding and analysed the consistency of master codes and sub codes with the original quotes from the transcripts. The resulting concurrence score (i.e. the total number of agreements divided by the total number of

[18] Details of the questions asked during the interviews can be found in Appendix 1a.

coding decisions) was 94%, which was within the 90% range recommended by Miles and Huberman (1994). Following their advice, inter-researcher differences were resolved by discussion and reference back to the interview transcripts.

In order to validate theory, Strauss and Corbin (1998) recommend presenting it to respondents for their reactions. However, Pidgeon (1996, p.84) stresses the impracticality of respondent validation in certain circumstances: "*Unfortunately, there will always be circumstances in which this is inappropriate or impractical... We cannot simply hold up a mirror to reality, no matter how well grounded our account*". As the respondents for this study were very busy professionals, it would have been impractical to ask them to validate theory. The process of analysis has been properly documented through detailed coding and graphical representation of categories and constructs, which all contribute to the validation of theory.

### 4.3.4 Use of literature

Although grounded theory is an exploratory approach, existing literature can still be used to enhance theory development, providing it does not constrain creativity (Strauss and Corbin 1998). Strauss and Corbin (1998) warn the grounded theorists against the constraining, and even stifling effect, of relying too much on existing literature, as the purpose of this methodology is to generate new knowledge and make original discoveries mainly grounded in data. However, this does not mean that the grounded theorist cannot make use of literature at all. Strauss and Corbin (1998, p.49) point out that, "*Literature can provide a source for making comparisons to data at the dimensional level*". They stress the importance of using literature during the writing stage: "*Bringing the literature into the writing not only demonstrates scholarliness but*

*also allows for extending, validating, and refining knowledge in the field*" (p.52).

Strauss and Corbin (1998, p.51) also advise the researcher to turn to literature to identify areas of investigation and to formulate questions that act as a stepping off point during initial observations and interviews. Hence, it was decided not to review all of the existing literature before collecting data, but rather to become familiar with the field within the first three months of the research study. This helped identify the broad concepts, and formulate relevant questions for the interviewing process. Following Strauss and Corbin's (1998, p.51) advice, literature was also used in the writing stage, where comparisons were made between literature and actual data whenever relevant.

## 4.4 EXPLORATORY RESEARCH FINDINGS

This section explains the findings from this exploratory study through the three stages of analysis, which allowed this researcher to gradually reduce large amounts of data and develop a conceptual model and related propositions. Findings are supported throughout by direct quotes from respondents and/or relevant literature, and the use of diagrams. Please refer to Appendix 1b throughout this section for category and subcategory names and explanations.

### 4.4.1 Open Coding Stage

Following the general grounded theory guidelines as well as Miles and Huberman's (1984) advice, the interview transcripts were coded line by line around the six initial categories identified for the interview topic list. Most of the codes were created by conceptualising statements and phrases within the transcripts; however "in vivo codes"

were also used, (Glaser and Strauss 1967; Strauss 1987) borrowed from the actual words of the respondents themselves. Miles and Huberman's (1994) style of coding was adopted in creating master codes and sub codes. All these 150+ codes and sub codes are presented in Appendix 1b.

The open coding stage was important in exploring all possibly relevant dimensions and categories with respect to the initial research question of how the development of the Internet as a new communications medium affected brands and brand management strategies. The initial six separate categories and related questions within each category were devised by this researcher based on the initial literature search conducted in the first few months of study from academic and practitioner sources. The purpose of the open coding stage was to explore all possible dimensions and variables, without making any explicit propositions regarding the relationships between them before identifying patterns and reducing data accordingly in the later stages. As the analysis progressed, some of the categories and/or subcategories were found to be irrelevant and made redundant; and explicit relationships between other categories were proposed.

Conceptual frameworks explain the key factors or variables studied and the presumed relationships among them; and they are best represented graphically rather than in text (Miles and Huberman 1984). Therefore, the findings from the open coding stage are represented as a graphical framework in Figure 4-1 below. This descriptive presentation of all the exploratory concepts questioned initially will progress into a more refined representation of relevant dimensions and the relationships among them following the axial coding stage.

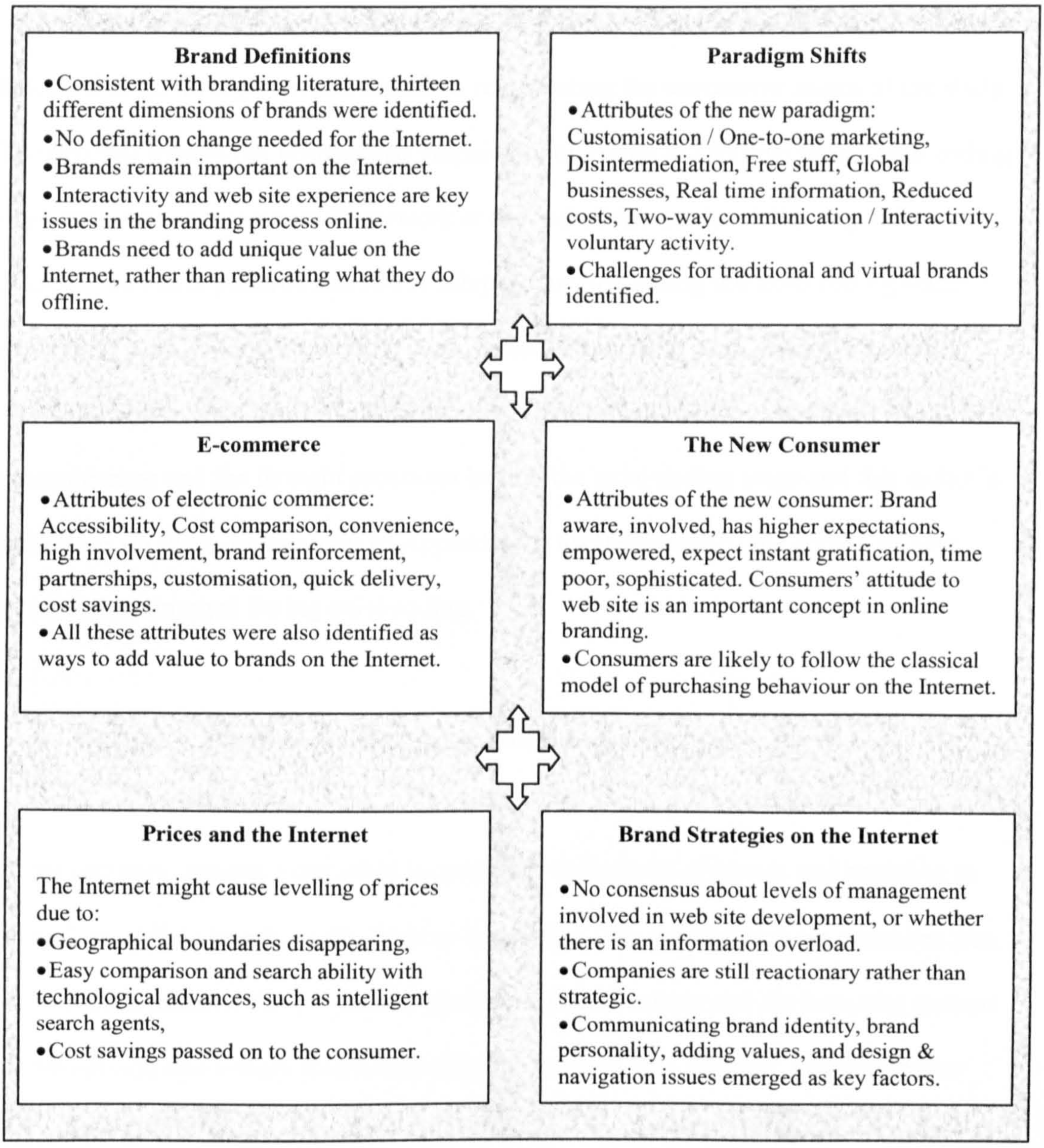



**Figure 4-1 Open coding – Initial categories and subcategories**

### 4.4.2 Axial Coding Stage

This section will explain the axial coding stage of analysis where a large amount of data generated by open coding was reduced to more manageable patterns and relationships between different dimensions among categories and subcategories.

Miles and Huberman (1984) point out that conceptual frameworks change en route, throughout the life of a qualitative project, as they are focusing and bounding devices that need to go through several iterations representing the successive stages of the study. The original framework represented graphically in Figure 4-1 following the open coding stage will change into a new framework at the end of this section following axial coding. The major patterns and relationships identified during the axial coding stage will form the basis for selective coding. The following sections explain the patterns identified within each category with specific relationships to other categories and subcategories; and the thought processes behind the axial coding stage and this author's reflections on them. Please refer to Appendix 1b for the details of the coding of new patterns that emerged during axial coding.

- **Category 1. Brand definitions and branding in general**

In this category, experts were asked to give their definitions of brands and branding in general, as well as brands on the Internet in specific. The reason for these questions was to establish a baseline for the experts' understanding of brands and the branding process before delving into a more detailed investigation in this area. Overall, this researcher was satisfied with all the respondents' level of knowledge and understanding into marketing and branding theory in general.

In the open coding stage, thirteen different codes were identified for the definition of a brand; e.g. brand as association, differentiation, identity, image, personality, shorthand device, value, etc, which are the dimensions of the brand concept consistent with literature. Of these thirteen dimensions, 'Brand as value' is an important one as it is repeated in Subcategory 3 as an identified difference to the branding process on the

Internet, as well as in Paradigm shifts subcategories 6 and 8 as a challenge to brands in terms of creating unique added values online. In the Brand Strategies section subcategory 7, different ways of adding value to brands online were also identified. Therefore, the value concept emerges as an important one in linking different categories. In Subcategory 2 within Definitions, there is only one code, which says, "Definition of a brand does not change on the Internet". This implies that the dimensions of the brand concept as identified in Subcategory 1 should also theoretically apply to the Internet.

Another dimension of the brand construct, which was identified as a repeating pattern across categories, was brand as 'identity/image/personality'. Although these three dimensions of the brand construct are explained separately in branding literature, for the purposes of the axial coding process, they were clustered into a single concept, as the respondents frequently mentioned a combination of these concepts as a single entity, or used them interchangeably. Brand identity in literature refers to how the brand owner tries to project the values of a brand (Kapferer 1992; Aaker 1996), whilst brand image and brand personality are consumer-based variables relating to how consumers perceive these values and characteristics of the brand (Aaker 1991, 1997; de Chernatony and McDonald 1998). Respondents in this study identified the effect of the online medium on these brand attributes; e.g. web site experience becomes part of the brand identity. In the Paradigm Shifts category, extending a brand into new media without creating a conflict with its offline identity was identified as a challenge for traditional brands online. In the e-commerce category subcategory 3, it was argued that e-commerce makes brands stronger, which relates to both brand identity and image/personality. In the Brand Strategies category subcategories 4 and 5, it was found that communicating brand identity online would be different on the Internet; and that the brand personality

can be more exciting. For the future of Internet branding, it was predicted that the online communications would lead the brand identity, indicating the important effect of the Internet on brands.

Another pattern identified first in the 'Differences to the branding process online' subcategory, and then several other categories, was the concept of 'interactivity'. It was pointed early on by most respondents that the interactivity of the online medium was one of the key issues to the changes in the branding process online. The interactivity concept as a whole, or the individual attributes of it, emerged repeatedly from several other categories and subcategories. In the Paradigm Shifts category subcategory 2, two-way communications/interactivity was identified as one of the attributes of the new paradigm. However, some of the other attributes of the new paradigm identified by respondents, such as customisation and real-time information, are in fact defined as attributes of interactivity in literature (Blattberg and Deighton 1991; Aldridge *et al.* 1997; Iacobucci 1998; Haubl and Trifts 2000; Liu and Shrum 2002). Customisation was also identified as one of the attributes of e-commerce in Category 3 subcategory 3, which is a dimension of interactivity that allows users to change web site layout or features according to their own personal preferences.

Design and navigation issues were identified as one of the challenges for brands online in subcategory 8, as well as in Brand Strategies category subcategory 4. These are closely related to interactivity, as most technological functionalities included in web site design and navigation are in fact the interactive features of that web site.

Another challenge identified for brands online was the effective use of virtual communities as a value-adding tool (Category 2 – subcategory 8 and Category 6 –

subcategory 7). Virtual communities are "*groups of people with common interests and needs who come together online. Most are drawn by the opportunity to share a sense of community with like-minded strangers, regardless of where they live*" (Hagel and Armstrong 1997b, p.143). Creating virtual communities requires the use of interactive functionalities on a web site, which allow users to communicate with each other either synchronously in chat rooms or via instant messaging programs, or asynchronously via e-mail or bulletin boards. Providing a platform for users to communicate with the company or among themselves is identified as part of the interactivity concept in literature (Heeter 1989; Ha and James 1998; Shih 1998; Downes and McMillan 2000).

The concept of interaction emerged in The New Consumer category – subcategory 3, when it was pointed out that the perceived risk would not necessarily increase online due to the lack of human interaction, as technological functions would compensate for that. One example of this would be the interactive feature on a web site that gives a call-back option to the user, whereby a customer service representative would ring the user at a specified time. Similarly, it emerged in the Brand Strategies category – subcategory 6, that the emotional values of a brand can be communicated online as the Internet is becoming more advanced and televisual. Again, this concept is closely related to the interactive features on a web site that provide a better and more realistic interaction experience for the users.

Different ways of adding value to brands identified in the Brand Strategies category – subcategory 7, e.g. customisation, entertainment, providing a valuable brand experience, information/education, and improving customer service, also relate to the concept of interactivity, as they are created or supported by the interactive features of a web site.

Finally, in the future of Internet branding section, it was predicted that alternatives to static web sites would become popular. This prediction inherently implies that users will be demanding more interactive web sites from companies, which supports the argument that interactivity provides value to users.

- **Category 2. Paradigm Shifts**

In Webster's New World Dictionary (1982), the word paradigm is described as "*a pattern, example, or model*" (Guralnik 1982). The concept of 'scientific paradigms' has played an important role in the philosophy of science. Kuhn (1970) developed a relativist account of science, where the emphasis is placed on the revolutionary character of scientific progress and the sociological characteristics of scientific communities. A paradigm shift occurs only rarely when existing frameworks of 'normal science' become inadequate in explanatory schemes.

Mercer (1997) uses the term 'Paradigm Shift' representing the ultimate emergent strategy, where an organisation is forced by the paradigm shift to rethink completely its strategic position. Drucker (1994), on the other hand, talks about constant change in terms of the 'theory of the business' rather than 'paradigm shifts'. The factors that make up the environment of an organisation – society, markets, customers and technology – are in constant flux; and therefore the ability to change accordingly must be built into the theory of the business.

Within the Internet context, existing literature refers to paradigm shifts in business processes, marketing and commerce. Therefore the category name 'Paradigm Shifts' was borrowed from literature (Peppers and Rogers 1993; Ho 1994; Aaker 1996; Martin

1996; Brännback 1997; Hoffman and Novak 1997; Mitchell 1997; Dutta and Segev 1998; Riley 1998) in order to conceptualise the Internet phenomenon in general. Questions relating to the online paradigm, business models and challenges to brands were asked within this category.

Subcategory 1 lists the range of attitudes from respondents to the concept of paradigm shifts, from totally believing or denying the phenomenon. The code 'just another channel' means the same as 'not believing the paradigm shifts'. Subcategory 2 clearly lists all the attributes of the new paradigm as identified by the respondents, which are consistent with existing literature. In subcategory 3, one respondent was sceptical about the existence of a paradigm shift; however, he also thought that the virtual business model was an improvement on the business models that already exist. This shows that he agrees there is some degree of change.

This category provided support for the identified patterns of value, brand identity, and interactivity as explained in the previous section. More importantly, this category provided the explanation for the conditions, strategies and consequences regarding the new paradigm initiated by the Internet. Subcategory 4 identified the factors affecting business models. Cost savings and different ways of making money are identified as two possible reasons for change. These represent the conditions for this phenomenon. Virtual versus traditional business models, the catalogue or purpose-built business models, the first mover advantage and creating partnerships and strategic alliances were identified as possible success factors for the Internet. These represent different strategies for this phenomenon. The consequences of the changing business models brought on by the Internet are the high stock value phenomenon of virtual companies, and the fact that the virtual business model represents a threat to the traditional

companies trying to extend their brands online. These will be explained in more detail later in this chapter.

- **Category 3. Electronic Commerce**

Electronic commerce (e-commerce) is the term used for trading on the Internet. While some authors use a narrower definition of electronic commerce for the sake of clarity (Chaffey *et al.* 2000, p.6), others adopt a wider view when they predict the wider reaching consequences of e-commerce in terms of creating a digital economy, and changing business processes (Kalakota and Whinston 1996; Hoffman and Novak 1997; de Kare-Silver 2000; Zinkhan 2002).

Consistent with literature, the definition of electronic commerce in Subcategory 1 had either narrow or wide meanings for respondents: In the narrow definition, it is restricted to online transactions only, whereas the wider understanding of the term e-commerce incorporates a continuum of different activities. Subcategory 2 represents the differentiation in motives for business-to-business versus business-to-consumer electronic commerce. Subcategory 3 lists the advantages of e-commerce, both from organisational and consumer perspectives. Finally, Subcategory 4 differentiates the type of products that are easy or difficult to sell on the Internet. The whole category of e-commerce feeds into the overall picture of business models and brands on the Internet. Virtual companies have to engage in e-commerce by definition as their existence depends on it, whereas traditional brands may or may not incorporate it in their systems. The attributes and advantages of e-commerce are closely related to the properties of interactivity and added value, as explained previously.

- **Category 4. The 'New Consumer' and the Internet**

As explained in Chapter 2, Internet-related literature generally identifies consumers in the information age as being more sophisticated, more demanding and empowered (Aldridge *et al.* 1997; Mitchell 1997; Geissler and Zinkhan 1998; Schultz and Schultz 1998; Van Raaij 1998; Korgaonkar and Wolin 1999; Kania 2001). Mitchell (1997) gave the name 'New Consumer' to this concept of a more confident and assertive consumer in control of his/her wants and needs and interaction with companies to satisfy those needs. Hence, this category name and related questions were based on literature.

Several important consumer behaviour related patterns emerged from this category. When the respondents were asked to comment on the concept of the 'New Consumer', they pointed to specific attributes of today's consumers, some of which have direct implications for online branding.

The first pattern identified was 'expectations'. It was argued that consumers' expectations are shaped by the Internet technology, and that they expect instant gratification from their interaction with brands online. The attribute of e-commerce as providing quicker delivery and better efficiency than other channels identified in Category 3 – subcategory 3, relates to this concept of raised expectations on the Internet. It is expected for e-commerce to be quicker and more efficient than bricks-and-mortar shopping, simply because at the consumer end, the whole activity can be completed with a few clicks in a short period. Meeting customer expectations and providing good service levels were also identified as challenges for brands online in Category 2 – subcategory 8.

The second pattern was 'involvement'. In subcategory 1, when asked to comment on the implications of the new consumer on branding online, the respondents suggested that the Internet makes consumers more aware of brands and related corporations, due to the cross-referencing of web site content, and the amount of corporate information included in individual brand web sites. Whether the reason is simply due to corporate policy or to cross promote brands, the result is that it becomes easier for consumers to find out about complex relationships between brands and corporations. It was also suggested by the respondents that the Internet makes consumers more involved with brands and their web sites because of interactivity. Similarly, in e-commerce category – subcategory 3, one respondent suggested that the integrated nature of e-commerce involves the customer in the business process. The definition of the brand as 'associations that consumers identify themselves with' (Category 1 – subcategory 1) is related to the involvement concept, as the more consumers associate themselves with a brand, the more involved they will become with it. The fact that the Internet is a voluntary, deliberate activity on the part of the consumer (Category 2 – subcategory 2), also points to the importance of getting consumers involved with the brand in order to attract them to its web site. Finally, the brand strategy to build relationships in order to add value to brands online (Category 6 – subcategory 7), is based on the premise that consumers are interested in and involved with the brand strongly enough to want to have a relationship with it.

The third pattern that emerged from this category was 'empowerment' of the consumers on the Internet. It is assumed that consumers are empowered by their interactions with brands and their web sites because they have more control over that interaction compared with other modes of communication. This concept has been discussed in literature; and in some cases, the variable of 'control' has been conceptualised as a

dimension of interactivity, as discussed in Chapter 3. The concept of control was further stressed when respondents argued that there was no information overload on the Internet as consumers control what they get from it (Category 6 – subcategory 3). As a brand strategy, it was also argued that companies should try to empower their customers by giving them more control in their interactions via the Internet (Category 6 – subcategory 7).

The final pattern that emerged from this category was the concept that consumers' attitude to web sites would be important in online branding. This consumer behaviour concept is linked to the web site design and navigation issues raised in Paradigm Shifts category – subcategory 8, and in Brand Strategies category - subcategory 4. The quality of design and navigation might affect consumers' attitudes to a web site, which can be a decisive test to measure the success and effectiveness of that web site.

To summarise, the patterns of 'expectations', 'involvement', 'empowerment' and 'attitude to web site' emerged from this category. These are important concepts as they relate to other categories and represent focal points in important relationships between the categories of paradigm shifts, changes to the branding process online, challenges to brands, dimensions of the new consumer, dimensions of the Internet paradigm and brand strategies.

- **Category 5. Prices and the Internet**

Literature suggests that the Internet would eventually level prices due to the global reach to wide choice (Quelch and Klein 1996; Barwise 1997), access to accurate price information and comparison (Gates *et al.* 1995; Bakos 1997; Cairncross 1998), and

intelligent search agents (Quelch and Klein 1996; Alba *et al.* 1997; Barwise 1997; Hagel and Armstrong 1997a). Hence, respondents were asked questions related to the effect of the Internet on prices.

Respondents generally agreed with the possibility of the Internet levelling prices; and listed different reasons for this, which included ease of comparison, geographical boundaries disappearing, intelligent search agents and cost savings. The only answer to the question "Will the Internet force brands to move down?" from all respondents was "depends on the product or industry". The narrow range and simplicity of the answers within this whole category suggests that the respondents did not think the prices on the Internet were important for the investigation of brands and branding on the Internet. Therefore, it was decided to make this category redundant. This decision is also supported by literature, which suggests that consumers on the Internet are not necessarily price sensitive (Shankar *et al.* 1998; Lal and Sarvary 1999).

- **Category 6. Brand Strategies on the Internet**

In this section, the respondents were asked eight questions regarding brand strategies on the Internet, based on literature as explained in Chapter 2. The areas discussed within this category include management levels involved in web sites strategies, integration issues, information overload, communicating the brand identity, consistency issues, emotional values, added values, and the future of Internet branding.

As explained up to this point, all of the patterns that emerged from the axial coding stage were supported by the findings from this category. Hence, these will not be repeated here.

This category included a wide range of issues ranging from levels of management to predictions about the future, all from a company / agency perspective. As this was an exploratory study asking a wide range of questions in order to gain a broad, abstract understanding of the phenomenon under investigation, questions related to brand strategies were included. At the time of this investigation, no decision had been made regarding the unit of analysis for the second phase of the study; i.e. the company or the consumer. Five of the patterns identified in the axial coding stage were consumer-based constructs. The remaining two, value and interactivity, can either be conceptualised as company-based (e.g. adding value, designing an interactive web site) or consumer-based (perceived value and perceived interactivity) as discussed in literature review chapters previously.

Some of the findings from the Brand Strategies category further supported the decision to concentrate on consumer perceptions rather than company intentions. When asked about the challenges to brands on the Internet, one of the first things they pointed out was that being customer focused is even more important on the Internet than it is in the real world:

"*More and more this universe, even for blue chip companies, is becoming customer-centric and if you can't show that you have a business which is customer-centric then there will be attrition either very quickly or over the longer term as well.*" (Projects Director)

"*You've got to be very customer focused; you've got to be customer-oriented. You've got to talk to them and ask for feedback.*" (Internet Consultant)

Similarly, when asked about the future of Internet branding, the respondents predicted that the Internet would become more mainstream and part of the everyday life in the near future; and hence, providing customer service would become very important for survival. Hence, based on these observations, a customer-centred perspective seems to be more appropriate for understanding the success of brands and the branding process on the Internet.

- **Conditions, Strategies and Consequences**

In addition to identifying patterns through data, another aim of the axial coding stage was to identify the conditions, strategies and consequences of the phenomenon under study. Conditions represent the set of circumstances or situations in which the phenomena are embedded. Actions or strategies are the responses made by individuals or groups to issues, problems or events that arise under those conditions. Consequences are the outcomes of the actions and strategies, or the failure of persons or groups to respond to situations, which can be an important finding in and of itself (Strauss and Corbin 1998, p.128).

The concepts of 'cost savings' and 'different ways of making money' were identified as conditions for change initiated by the new online paradigm. These concepts emerged repeatedly from various categories. Cost savings were mentioned as an attribute of the new paradigm, as a reason to change business models, as a challenge to traditional brands as their transaction costs are higher than virtual businesses, as a motive in business-to-business e-commerce, as an attribute of e-commerce both from consumer and company perspectives, as a reason for levelling of prices, and finally, as a brand strategy to add value. 'Different ways of making money' was mentioned as an attribute

of the new paradigm in the form of disintermediation or creation of new intermediaries, and in the form of companies offering free stuff to users, as a factor affecting business models, and as a challenge for virtual brands; i.e. identifying gaps in the market that are not fulfilled by traditional companies. All these concepts are explanatory factors underlying changes in business models in the context of the new online paradigm; and they are consistent with literature as discussed previously in Chapter 2.

Strategies or success factors for the new paradigm were identified as the virtual versus traditional business models, catalogue or purpose built business model, first mover advantage, and partnerships. The difference between virtual and traditional business models was emphasised, and different challenges for each model were identified by respondents. For example, whilst traditional companies might have an advantage over virtual competitors in terms of owning a famous brand, virtual businesses should theoretically enjoy lower transaction costs and overheads. Catalogue or purpose-built models were also predicted to be more successful on the Internet, as the former already have the experience in fulfilment, and the latter would be more cost efficient and effective in customer service. Being a first mover in a specific market can also be an advantage. However, due to the low entry costs and the ease of creating an online business, this advantage is not likely to be sustained. The final success factor identified was the creation of partnerships or strategic alliances with other online businesses, media owners and content providers in order to gain more exposure or word-of-mouth, or cross-promote products and services.

The consequences of the new paradigm and business models were identified as the high stock value phenomenon, and the virtual business model as becoming a threat to

traditional companies. At the time of the interviews, some virtual brands were overvalued in the stock market although they never yet made any profits. This phenomenon is not relevant anymore, as the technology 'bubble' burst soon after these interviews. Most virtual companies went bankrupt; and the remaining ones were valued at realistic levels. The prediction that virtual business models could become a threat to traditional models may not be relevant either. Whilst many virtual brands disappeared overnight, traditional companies caught up with the changes in the market place, and extended their brands to the online environment successfully. Today, almost all traditional brands have an online existence; and most actually sell online successfully.

The conditions, strategies and consequences explained in this section set the background and context for the study of the online environment. As these are descriptive in nature, and consistent with literature, they will not be included as constructs or variables in the conceptual model.

Figure 4-2 below graphically presents the patterns, conditions, strategies, and consequences identified during the axial coding process.

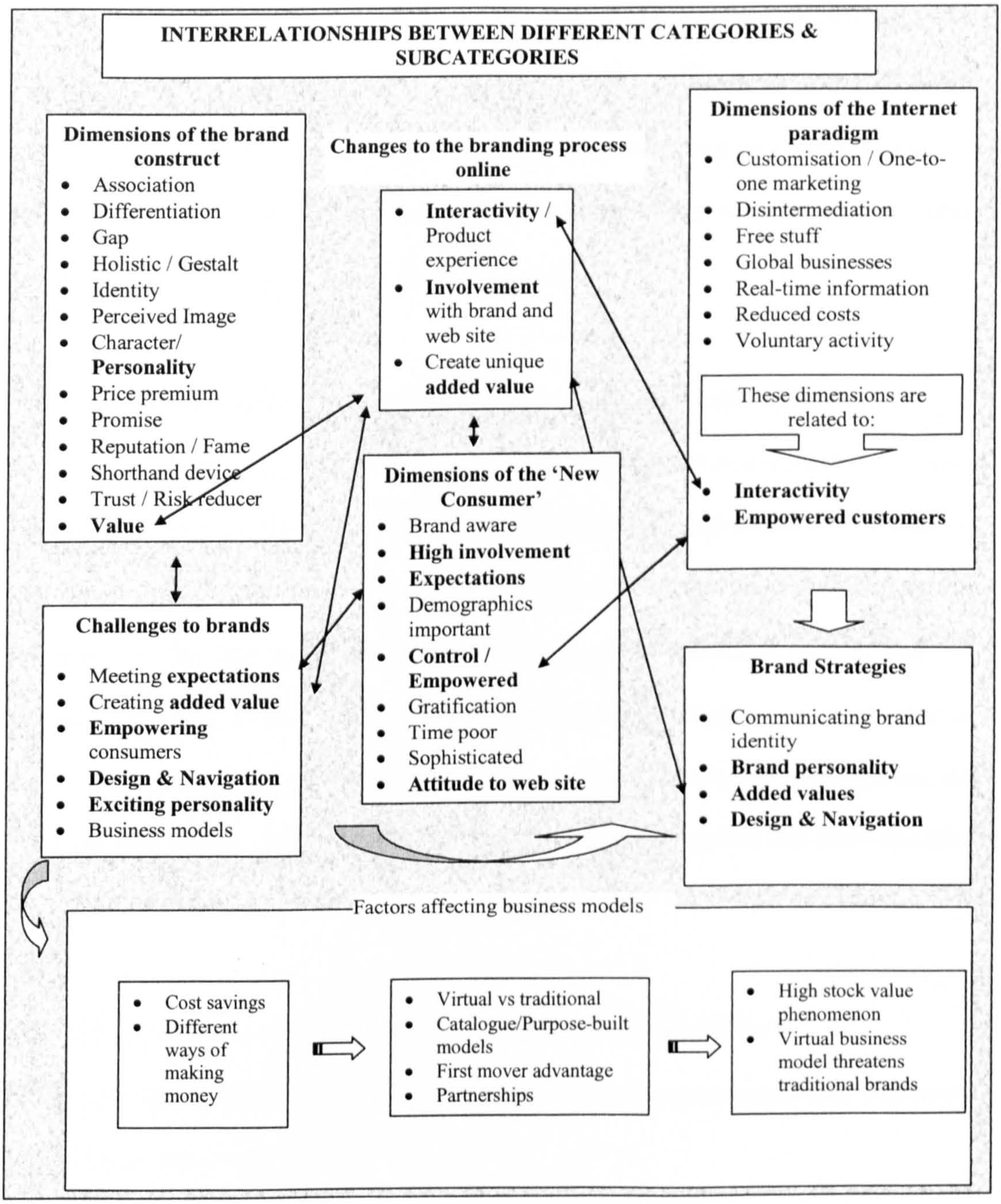



**Figure 4-2 Axial coding - Interrelationships between categories and subcategories**

#### 4.4.2.1 Summary of the Axial Coding stage

The purpose of the axial coding stage of analysis was to reduce the large amounts of data generated during the open coding stage by identifying patterns across the initial categories and subcategories. Whilst open coding aims to explore all possibly relevant concepts and categories with respect to the initial research question without proposing any relationships, axial coding provides the first step towards that by finding patterns within the large quantity of data produced previously, as well as understanding possible conditions, interactions, strategies and consequences.

As explained at the beginning of this chapter, this exploratory study started its investigation with the general question of how the development of the Internet as a new communications medium affected brands and brand management strategies. Related to this very broad concept, several questions under six broad categories were asked to the respondents. The axial coding stage related these categories and found patterns and relationships between them. Having identified the concepts of interactivity and value, as well as consumers' responses to brand web sites, as key factors in this investigation, this stage also allowed the focusing of the broad initial research question into more specific three questions as stated below:

- Are brands perceived differently by consumers online versus offline?
- What is the effect of the interactivity of a brand's web site on key consumer responses to that brand and its web site?
- How do brands add value to their web sites, and what affect does the concept of 'value' have in consumer-brand interactions on the Internet?

The selective coding stage in the next section explains the patterns and relationships more explicitly; and arrives at the final conceptual model that postulates propositions in relation to these research questions.

### 4.4.3 Selective Coding Stage

Selective coding involves systematically linking other categories and subcategories to the core category of the research project (Strauss 1987). As was shown in the previous section, the concepts of Interactivity, Value, Brand Identity/Image/Personality, Expectations, Involvement, Empowerment and Attitude were identified as patterns throughout various categories. The conditions, strategies and consequences regarding the changes to business models were also identified.

In the selective coding stage, the aim is to identify the core categories, and to make the relationships between all the constructs in the conceptual model more explicit.

Out of all the patterns identified, the concepts of 'Interactivity' and 'Value' are repeatedly related to various categories, and seem to be the most important constructs in the process of interaction between consumers and brands on the Internet. Hence, they were identified as the core categories. Interactivity is a complex construct that embraces and explains different aspects of the new online paradigm, from customisation to one-to-one and many-to-many communication modes between the company and consumers, as well as among consumers themselves. Interactivity is related to all other patterns identified. It emerged from data that interactive features, such as virtual communities, customisation, entertainment, improving customer service, add value to consumer

interactions with brands on the Internet. Hence, it is directly linked to the concept of adding value to brands on the Internet, and the other consumer-based patterns identified.

The value concept is also a core category because it answers the most important question as to why anybody would voluntarily go to a brand's web site. If a brand's web site were a mere advertisement similar to a print or television one, it would not make any sense for consumers to try to see it in their own time and at their own expense. It is not difficult to see that brands need to add unique values to their online communications to make it worthwhile for consumers to go to their web sites.

The underlying premise here is the voluntary nature of the new paradigm, which requires an active involvement on the part of the consumer. Unlike television, the brand owners cannot expect to 'push' their messages on to a passive consumer. Brands need to 'pull' active audiences to their web sites by providing unique benefits they cannot get elsewhere. These values and benefits need to be assessed from the consumers' point of view, because not all attempts at adding value may be welcomed by the consumers. As it was decided to take a customer-centric view for the study, the construct to include in the model would be 'perceived values'.

The perceived values of a web site have a direct relationship with the other consumer-based patterns identified previously. For example, perceived values are linked to the consumer involvement concept. If a consumer perceives certain benefits to be valuable in his/her interaction with a web site, he/she would be more likely to be involved with that brand and the web site, and vice versa.

Interactive features and benefits of a web site also tend to shape consumer expectations. The fast changing nature of computer and Internet related technologies raise consumer expectations. When a consumer experiences certain interactive features on a web site, which make their life easier or more interesting, it sets the benchmark for other web sites, as consumers would expect those features from other similar sites as granted. The more their expectations from a web site are met or exceeded, the more valuable their experience with that brand and its web site would be.

Brand identity can also be communicated differently on the Internet. With interactive technologies and new ways of adding values, brands can be more wacky and interesting on the Internet. Hence, the brand personality would be perceived as more exciting online than offline. Interactivity of the medium and the specific interactive features on a web site also empower consumers by giving them more control over their interactions with brands online. The more in control and empowered they feel, the more valuable their experience with that brand and its web site would be.

Similarly, there are links between consumer attitudes, interactivity and perceived value of a web site. It is generally accepted in literature, verified by empirical research, that interactivity is a positive attribute which results in more favourable consumer attitudes (McMillan 2000; Coyle and Thorson 2001; Griffith and Gray 2002; Fiore and Jin 2003; Teo *et al.* 2003). The more interactive a web site is, or perceived as such by the consumers, the more favourable their attitudes to that web site would be. Their interaction with the brand web site and their overall experience is also likely to be more valued if they have a positive attitude to that web site.

To summarise, the categories and subcategories that are linked to the two core categories of interactivity and values are consumer expectations, increased control and consumer empowerment, consumer involvement, brand personality and finally, attitude toward the web site. At the highest level, the core category is a summary of the grounded theory (Strauss and Corbin 1998). In this case, the core categories of 'interactivity' and 'perceived values' summarise the overall theory developed from the coding and categorisation of the interview transcripts.

This overall theory can be summarised as follows: **The interactivity of a web site has an influence on how consumers evaluate that web site, respond to it and form their attitudes towards it, as well as how they perceive that web site's values**. Detailed propositions positing explicit relationships between categories will be provided in the next section.

Figure 4-3 below provides a graphical representation of the interrelationships between core categories and related constructs:

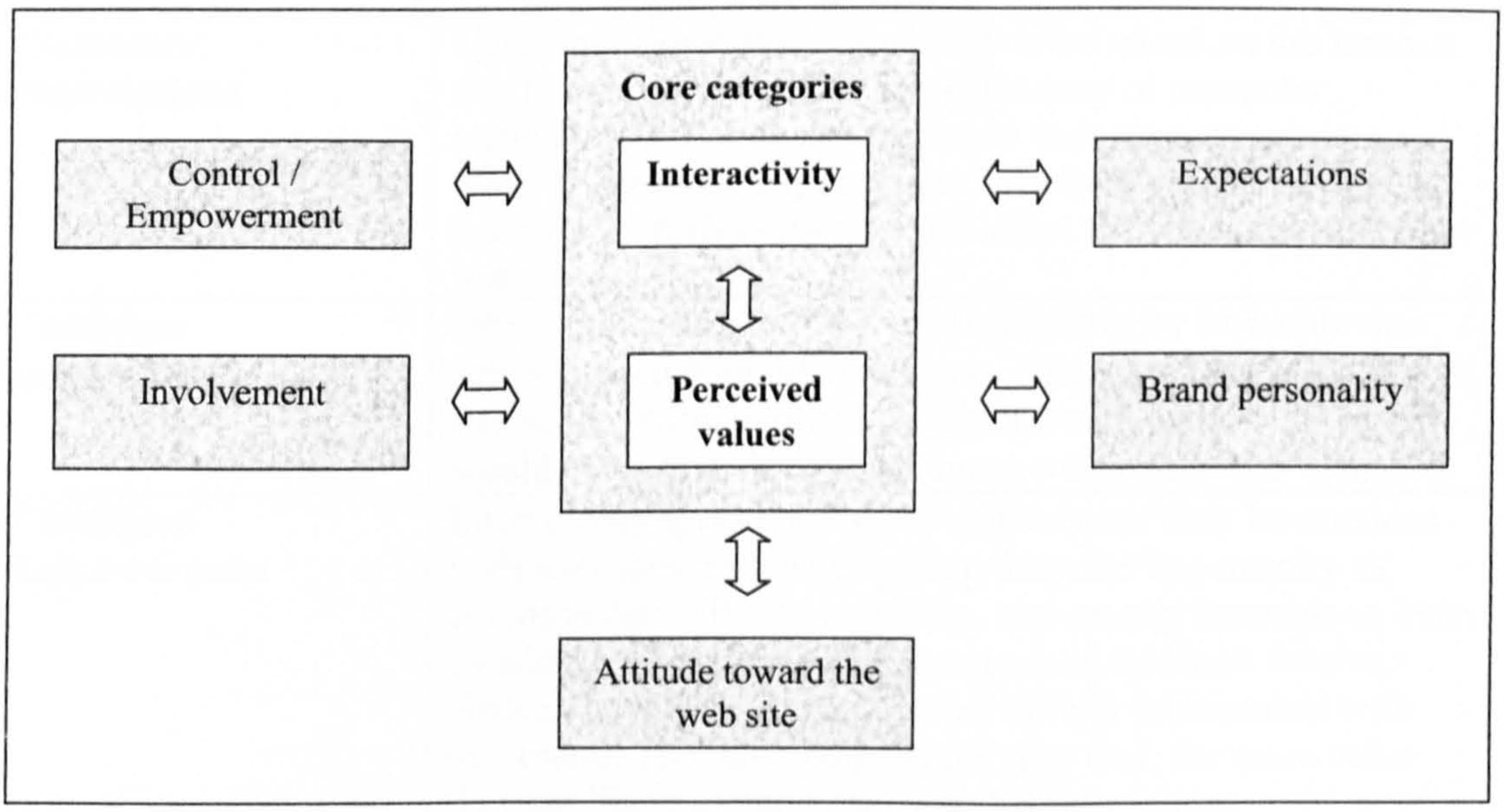



**Figure 4-3 Selective coding – Core categories and related constructs**

The relationships shown in Figure 4-3 above are explained in a concise textual form in Table 4-1 below as the relevant factors in consumer-brand interactions on the Internet.

**Table 4-1 Relevant factors in consumer-brand interactions on the Internet**

| Factor | Description |
|---|---|
| **Interactivity** | Interactivity is an all encompassing, complex construct representing the most differentiating quality of the new online paradigm at the most abstract level, as well as defining the technological features and functionalities that allow personal interactions of users with brands or other users. Interactivity is the core category that relates to how consumers perceive a brand and its web site, how involved they become with that web site, whether they feel empowered and their expectations are exceeded, and finally how they perceive the value they get from that interaction, and what their attitudes are likely to be towards the brand's web site. |
| **Perceived Value** | The value concept relates to the need for brands to provide additional benefits to consumers in their interaction with the brand's web site in order to entice them and encourage them for further visits. The value that consumers get from a web site is likely to be affected by the interactivity of the online medium and the brand's web site, as well as how they perceive the brand attributes, and their own expectations, involvement and empowerment with regard to that web site. |
| **Brand Identity / Image / Personality** | The interactivity of the online medium and the individual brand web site are likely to influence the way consumers perceive brand attributes, such as its personality. This in turn may have an affect on how consumers value that brand's web site and their interaction with it. |
| **Consumer Expectations** | Consumer expectations are likely to be raised on the Internet due to the perceived ease and efficiency of computer technologies. For more interactive web sites, consumers are likely to feel their expectations have been reached, or even exceeded, which in turn, would affect the way they value that web site. |
| **Consumer Involvement** | Interaction with a brand web site requires by its nature the active participation of consumers. The more interactive a web site is, the more involved the users would feel, which in turn would make their interaction more worthwhile and valuable. |
| **Consumer Empowerment** | Interactivity gives users more control over their interactions with web sites, as well as giving them the opportunity to communicate with the company, and among themselves, even by adding direct input to discussions or feedback forums. Hence, they will feel empowered in their relationship with that brand. The more empowered they feel, the more value they are likely to perceive from that interaction. |
| **Consumer Attitudes** | The interactivity of a web site and consumers' perceptions of value related to that web site are likely to influence their attitudes to that web site. |

## 4.5 PROPOSITIONS

The previous sections in this chapter explained in detail the exploratory research process and the qualitative analysis that reduced the large amounts of data covering a wide range of issues about brands on the Internet, to a more manageable explanation of the important constructs in a model of consumer–brand interactions online. This conceptual model is original as it is grounded in empirical data, yet it is also grounded in existing literature on brands and Internet marketing, as shown throughout the analysis. Empirical data from this exploratory study suggests that interactivity and adding values are the core constructs within the conceptual model, which lie at the centre of analysis and have relationships with other constructs.

Interactivity represents the paradigm shift introduced by the Internet at the abstract level as well as encompassing the specific attributes of the new paradigm, such as customisation and one-to-one marketing, at the operational level. The concepts of interactivity and adding values have been emphasised repeatedly by respondents in several different categories. Interactivity seems to have a direct effect on brands on the Internet, as one respondent put it: "*What the interactivity does is that it forces 'brand as image' and 'brand as product experience' to really integrate so that they are intertwined to one another*" (The Chairman of a new media agency). Interactivity and value constructs are also mentioned frequently in the literature, which will be discussed in more detail during the operationalisation of constructs in the next chapter.

Propositions postulating specific relationships between the constructs in the conceptual model that emerged from this exploratory study are given in sections 4.5.1 to 4.5.6, and summarised in section 4.6.

### 4.5.1 Relationship between Interactivity, Brand Personality and Perceived Value

The first proposed relationship is the effect of interactivity on brand personality. As shown throughout the coding process, the concepts of brand identity, brand image and brand personality emerged from data in exploring the concept of brands on the Internet.

Brand identity relates to how a brand owner would try to incorporate certain values into their brand offering, which in turn would project a certain image or personality to the outside world. One respondent pointed to the importance of interactivity and product experience in this process, where the web site experience of a brand becomes part of the brand identity and brand values: *"The RAC Web site gives you traffic news, it gives you route planning. That is part of the brand identity. Because the brand identity for the RAC is, 'movement drives you'. So actually what the Web site does is part of the brand identity."* (Strategic Solutions Director) This quote shows that interactive features, such as real-time traffic information and interactive software for route planning, can support the RAC brand's identity in terms of 'helping you to have a smooth journey in your car', which ultimately adds to the value perception of consumers.

Another respondent pointed out the role of interactivity in consumers' perception of brand identity and values with the following quote:

*"In interactive media, if the next thing you did is you clicked on a particular hypertext link and it crashed, your fundamental experience of the interaction would be totally contrary to the look and feel messages you've been given. So all of a sudden, the way those emotional and logical values are communicated through interactivity becomes much more powerful and important than how it looks and feels.... It's impossible for me to go to a web site and think that Federal Express is efficient and quick and reliable if its web site isn't efficient, quick and reliable. Therefore, online, the imagery and the*

*product experience are much closer together. ... If your site is slow and clumsy and awkward, and your brand says they're fast and efficient, everybody would experience and feel; and the values they would take out would be driven by the experience of interactivity and the functionality."* (Chairman)

These are good examples of the link between interactivity, brand attributes and value.

Brand image and personality are consumer-based constructs; and depending on how consumers interpret the values and characteristics projected by the brand owner, there may be a gap between identity and image (de Chernatony and Dall'Olmo Riley 1997; de Chernatony 1999). Consistent with literature, the Chairman of a new media agency explained the existence of this gap as, "*Companies, and ad agencies, consultancies and the like, create what they regard as ideal brands, in other words, they talk about sets of values that they would like to be associated with their products and services and with the company...The reality is nearly always a gap between the ideal and the reality."*

Due to the existence of this gap between identity and image, it makes sense to adopt a customer-centred view when trying to identify a brand's attributes and values. Hence, for the purposes of this study, the construct of brand personality was incorporated into the conceptual model. Brand as personality concept was very clearly explained by the Managing Director of a new media agency in this quote: "*A brand provides a personality for an organisation or a product that a customer can instantly recognise.*"

In a similar fashion, another director said, "*Every brand does have a character... So it's the character of a product or products – sometimes the organisation that sits above them.*"

Brand personality is a widely accepted construct within branding theory, defining the brand 'as a person'; and in many cases, it is a key construct to understand brand

associations and choice (Aaker 1991), value and positioning (Aaker 1997; de Chernatony and McDonald 1998) and brand identity (Kapferer 1992).

Stern (1993, p.17) discusses the early literature on brand personality and summarises that brands have personality and consumers have mental images of brand personalities. She also argues that the function of brand personality is "*to facilitate the transformation of the brand's unique trait bundle into a consumer's mental picture*".

Practitioners have similar points of view. Larson (2002) defines brand personality as the immediate emotional response that people have to a brand; e.g. the first involuntary thought that comes to their mind when they hear a brand name, or touch the product. Triplett (1994) argues that a brand's personality can be beneficial to both consumer and marketer, as it gives consumers confidence in their purchasing decisions and helps promote loyalty.

David Aaker (1996) talked about the importance of the brand personality concept in building strong brands, and pointed to the need for more empirical research, as empirical studies of brand personality are few and far between. In one early example, Plummer (1985) studied the effects of brand personality on consumers' choice of a distinctive brand of soft drink; and concluded that for many product classes, the brand personality is the key element in understanding brand choice. He also argued that researching brand personality might prove more effective to marketers and advertisers than trying to create segmentations based on consumer personalities. Jennifer Aaker (1997, p.347) defined brand personality as "*the set of human characteristics associated with a brand*", and developed a new measurement scale for measuring brand personality along five dimensions based on her empirical work. These five dimensions were

sincerity, excitement, competence, sophistication and ruggedness. Later, Kim *et al.* (2001) used Aaker's scale in their own empirical study where they looked at the effect of brand personality on brand loyalty, and found that the attractiveness of brand personality has a direct effect on word-of-mouth among consumers and an indirect effect on brand loyalty.

Most of the characteristics in Aaker's 'excitement' dimension of brand personality, such as 'trendy, exciting, cool, young and contemporary' are inherently present in the Internet context; hence, the brand personality could be perceived as more exciting on the Internet, due to the inherent qualities of the medium.

One of the respondents claimed that the brand personality offline creates an expectation for the brand personality online (Digital Business Manager). The same respondent also said that brands have a unique digital occurrence and a unique brand personality on the Internet. There is a clear gap in academic literature regarding the role of brand personality on the Internet, which this study aims to fill. There is a limited amount of practitioner literature that discusses the effect of the online medium on brand personality; and concedes that building a strong brand personality can be a success factor for digital brands on the Internet (Chaffey *et al.* 2000; Sheaf 2000; Turinas 2000; Kania 2001). Hence, it is proposed that Internet medium itself and the level of interactivity present on brand web sites would have an effect on how consumers perceive the excitement dimension of that brand's personality.

A relationship between brand personality and value is also proposed. Value is a complex construct intertwined with the definition of a brand as well as the core essence of the brand. It is generally accepted in branding literature that what differentiates a

brand from a mere product is the values it offers beyond the physical attributes of the product. This concept was also emphasised by the respondents of the study. One Managing Director pointed to the difference between a commodity and a brand: "*They add value to a commoditised product*". In contrast, the Chairman of an agency looked at it from the perspective of the consumer: "*They [brands] are the tangible description consumers would give to express their perception of the values they associate with the company or a product. So a brand encompasses how I feel about it, what values I draw about it, what judgements I make about it*". This quote inherently links the concepts of brand attributes from the consumers' point of view, and the values they perceive from that brand. Hence, it is proposed that consumers who perceive a brand as being exciting on the Internet would also perceive high value from that brand's web site.

### 4.5.2 Relationship between Interactivity, Involvement and Perceived Value

The Internet differs from mass media in terms of its attributes like direct interaction, the need to 'pull' audiences rather than 'push' messages, hence, the related challenge to entice and involve users in their interactions with web sites. Brands need to pull active Internet audiences, who have almost endless alternatives, to their own web sites. The respondents expressed the need for 'pull' rather than 'push' strategies as follows:

"*You've got this problem on the Internet that nobody would go to that site because you have to make a conscious decision to go to that site. You could put that sort of TV advertisement on the Internet, but why would anybody look at it?*" (Editor and writer of digital branding)

"*To me the power of the Internet is as a – it's sort of pull rather than push. In other words the communications and transactions initiated by the customer rather than by the seller.*" (Professor of Management and Marketing)

*"Lots of brands find a real challenge going on the Internet because they're used to*

*advertising; so they push a message out. That's the problem, whereas on the Internet you have to draw people in."* (Managing Director)

It has been suggested in literature that the interactivity of the online medium leads to higher user involvement (Evans and King 1999; Liu and Shrum 2002). McWilliam *et al.* (1997) also posited that involvement is higher on the Internet compared to traditional media regardless of the product category. As one respondent directly put it "*People have been prepared to get involved with (a detergent brand) one way or another through these banner executions, and by clicking to have it placed in their shopping basket wherever they shop.*" (Projects Director), the interactive features in a web site can encourage users to get involved with it. Another respondent pointed out that the integrated nature of electronic commerce involves the customer in the business process. Hence, it is proposed that the Internet medium itself and the level of interactivity present on brand web sites would have an effect on how consumers perceive their involvement with that brand. Furthermore, the more involved the users feel with a brand through their interaction with the web site, the more worthwhile and valuable they would consider that interaction.

### 4.5.3 Relationship between Interactivity, Perceived Value and Attitude towards the web site

Empirical data from the exploratory phase of this study suggests that the design and navigation aspects, which are supported by interactive features on a web site, would affect consumers' perception of and attitude to brand web sites. This finding is consistent with other empirical studies, which found a positive correlation between interactivity and attitude to web sites (Wu 1999; McMillan 2000). Interactivity is expected to play a role in determining the overall value of the web site as perceived by

consumers, and consequently the overall favourability the consumers develop towards that web site. It is important to assess this general favourability towards the web site as it indicates the likelihood of web visitors returning to the web site for consequent visits, which is a very important factor in determining the effectiveness and long-term success of a web site from a managerial perspective. This view is based on Fishbein and Ajzen's (1975) attitude theory, which argues that attitude towards an object can predict the behavioural intention towards the same object. Correspondingly, it can be argued that attitude towards a web site would predict the intention to visit that site, and intention to buy from that web site. Recent literature supports this view both conceptually and empirically (Balabanis and Vassileiou 1999; Supphellen and Nysveen 2001; Fiore and Jin 2003; Teo *et al.* 2003). Hence, it is proposed that consumers who perceive high levels of interactivity and value from a web site would have more favourable attitudes towards that web site.

### 4.5.4 Relationship between Interactivity and Perceived Value

Value was the most reiterated concept by the respondents, both in terms of defining a brand and its essence, and as an answer to the central question of 'Why would anybody go to a brand's web site?" As one respondent pointed out "*If it's only another media advertising channel, then in the end, what value does it add to the consumer?*" ((Freelance author and brand consultant)

Hence, one of the strongest propositions that emerged from this study was that 'Brands need to add unique values on the Internet in order for consumers to invest their time and resources to view those brand web sites.' The direct quotes from respondents below succinctly explain the concept that brands need to add unique values on the Internet for strategic success of their web sites:

"*Some of them [companies] are still wasting enormous amounts of money, particularly I would say, some of the ones that are just designed for building brand without telling*

*anything, and without really giving any added value. In other words, ones that are almost trying to replace TV advertisements... Why should anybody go to them? You wouldn't switch on a TV channel that only had one advertisement on it, would you? It has to add something useful; there has to be some reason for people to go to web sites.*" (Editor and writer of digital branding)

"*There is the challenge of using this medium in a way, which is relevant and has value for people so that they keep coming back.*" (Professor of Management and Marketing)

Although it is easy to see the link between value and web site success, it is not always easy to interpret, define or measure it. The concept of adding value seems to have different meanings for different people. Therefore, it is essential to define added value in the context of this research project. As this project looks at the interaction between consumers and brands on the Internet, de Chernatony and McDonald's (1998, p.80) definition is adopted, which also reflects the respondents' understanding of this concept:

"*The brand's added values are those that are relevant and appreciated by consumers and which are over and above the basic functional role of the product.*"

The relationship between web site interaction and value has also been pointed out in literature (McWilliam *et al.* 1997; Breitenbach and Van Doren 1998; Geissler and Zinkhan 1998). Different ways of adding value to web sites using interactive technologies have been identified in a large body of literature as discussed previously in Chapter 2. Hence, based on exploratory findings as well as literature, it is proposed that consumers will perceive high value from web sites with high levels of interactivity.

### 4.5.5 Relationship between Interactivity, Perceived Control and Perceived Value

Respondents from this study stressed the fact that consumers are empowered by the Internet and they have more control over the whole process from information search to

actual purchase. One respondent stressed how consumers have all the control in their interaction with web sites because they can switch from one web site to another with the click of a mouse: "*...always remember that more or less the consumer is in control here. Because the consumer has the power to – they've got the power of the mouse; they can choose to move from one site to another. And that makes a very big difference.*" (Strategic Solutions Director)

Other respondents explained the direct effect of the interactivity of a web site, such as real-time orders via online forms, on how consumers would feel in control:

*"They [consumers] have to spend more time filling out the form rather than sitting with a human being or speaking to a human being, who is filling out the form at their end but the advantage is that they have more control over the process." (Projects Director)*

"*Virtually all the processes are handled by the customer, but the customer likes it because it gives him even more control.*" (Freelance author and brand consultant)

The concepts of empowerment of consumers and increased control have also been discussed frequently in literature, with the resulting consensus that the interactivity of the Internet medium gives consumers more control (Hoffman and Novak 1996; Aldridge *et al.* 1997; Mitchell 1997; Raman 1997; Schultz and Schultz 1998; Van Raaij 1998; Korgaonkar and Wolin 1999; Eroglu *et al.* 2001; Kania 2001; Koufaris *et al.* 2002; Srinivasan *et al.* 2002). Van Raaij (1998) suggests that the 'new consumer' is more powerful because of technological developments. Interactive media, such as the Internet, allows short response and feedback intervals for the questions and information consumers and manufacturers ask. The Internet creates a transparent market, which

leads to more consumer power and control. Similarly, Schultz and Schultz (1998) talk about the twenty-first century market place being dominated by the consumer because the consumer has more power, and is in control. Internet users possess more control in their transactions because they initiate the dialogue and control information flow (Aldridge *et al.* 1997; Korgaonkar and Wolin 1999; Kania 2001). Mitchell (1997, p.258) explains the shift of power from the marketer to the consumer by contrasting the industrial age with the information age: "*If mass TV advertising was the perfect icon representing all the values and assumptions of industrial age marketing, so the Internet is the perfect icon of the new model, with its emphasis on dialogue where the user is in control, as opposed to monologue where the marketer is in control.*". Kania (2001) argues that consumers' empowerment comes from information, choice, control, trust and speed. Ho (1997) simply predicts that the rules of the game in marketing will change substantially because the consumers have better control on the Internet over what they are exposed to.

The construct of empowerment is well defined and established in human resource and organisational research literature. It is defined broadly as increased intrinsic task motivation manifested in meaning, competence, self-determination and impact (Thomas and Velthouse (1990), in Spreitzer (1995)). Spreitzer's (1995) theoretical model of psychological empowerment in the workplace shows the 'locus of control' construct as an antecedent to empowerment. Similarly, another study found that there is a positive relationship between perceived control and empowerment (Honegger and Appelbaum 1998). As the perceived control construct is an antecedent to empowerment, and that empowerment seems to be human resources context-dependent whereas perceived control is a generalisable psychological construct, it was decided to use perceived control rather than empowerment as a variable in the conceptual model of consumer–

brand interactions on the Internet.

To summarise, based on exploratory findings as well as literature, it is proposed that the Internet gives more control to the consumers in their interaction with brand web sites, and empowers them. More specifically, consumers are expected to perceive that they are more in control of their interaction with web sites that have higher levels of interactivity.

Empowerment and control are also closely linked to perceived values. One respondent talked about a web site creating value for the customers by empowering them in some way: "*What will Internet users be looking for in the concept of a Web site... The commonality between those things is that the Web site has touched me in some way or another. It has empowered me in some way or another. That's what they're looking for.*" (Strategic Solutions Director). Hence, it is proposed that consumers will perceive this empowerment as an added value to the brand. More specifically, consumers who perceive higher levels of control from a web site will also perceive high value from that web site.

### 4.5.6 Relationship between Interactivity, Expectations and Perceived Value

The findings from this study suggest that the concept of 'raised expectations' is an important attribute of the new consumer on the Internet, and that consumers' expectations are shaped and raised by the Internet and technology. Consumers expect things to work quicker on the Internet, and they generally expect more from brands.

Respondents in this exploratory study put this view across very clearly as follows:

*"So our expectations as consumers have been driven up. When you go onto the Internet - which is technology - therefore people think this is the latest thing. If it then starts to fall down then you will find consumers not using it... I think there is a psychological expectation that because you are using high tech equipment that everything about it is high tech... If you're using the technology of a PC everyone's aspirations are well this has got to be better."* (Chief Executive)

*"And people expect because it's electronic, consumers actually expect things to be delivered more quickly, a lot quicker than normal. They expect it to be a lot more efficient."* (Digital Planning Manager)

*"I think it's absolutely true to say that people are becoming more demanding now... If you've got a really, really cool brand like Nike or something like that, you expect when you go to their Web site that it's going to be as cool, but much better."* (Digital Business Manager)

Nilson (1998) supports this by stating that the 24-hour availability of services raised customer expectations. Internet also encourages audiences to expect instant gratification from web sites (Brooks 1998). The concept of instant gratification was explained by one of the respondents as follows: *"My requirement is going to be satisfied or not there and then. And we're moving towards a society, which is instant gratification like. Everybody wants everything now."* (Chief Executive)

Hence, in the context of the Internet, it is proposed that in the broadest sense, the rapid technological developments influence customer expectations, as customers generally expect more from brands online as opposed to offline. This argument is difficult for this research project to test, as it requires longitudinal data in the form of an aggregate index

of consumer expectations (Van Raaij 1991) in order to detect the effect of Internet technology on consumers' overall expectations. However, at the individual brand level, it can be argued that the level of interactivity in a web site would have an effect on the consumer expectations from that web site. For more interactive web sites, consumers are likely to feel their expectations have been reached, or even exceeded, which in turn, would affect the way they value that web site.

## 4.6 SUMMARY OF PROPOSITIONS

**Proposition 1a**: Due to the inherent properties of the Internet medium, brands will be perceived as more exciting by consumers online than offline.

**Proposition 1b**: Higher levels of interactivity in a brand web site will enhance the excitement dimension of brand personality as perceived by consumers.

**Proposition 1c**: Consumers who perceive a brand as being exciting on the Internet are also likely to perceive high value from that brand's web site.

**Proposition 2a**: Due to the inherent properties of the Internet medium, consumers are expected to get more involved with brands online than offline.

**Proposition 2b**: Consumers are expected to be more involved with brand web sites that have high levels of interactivity.

**Proposition 2c**: Consumers who are more involved with a brand's web site are also likely to perceive high value from that site.

**Proposition 3a**: Consumers are expected to have a more favourable attitude toward web sites with higher levels of interactivity.

**Proposition 3b**: Consumers who perceive a high value from a brand web site are expected to have a more favourable attitude toward the web site.

**Proposition 4**: Consumers are expected to perceive high value from web sites with high levels of interactivity.

**Proposition 5a**: Consumers are expected to perceive that they are more in control of their interaction with web sites that have higher levels of interactivity.

**Proposition 5b**: Consumers who perceive higher levels of control from a web site will also perceive high value from that web site.

**Proposition 6a**: Consumers are expected to find web sites with high levels of interactivity as exceeding their expectations.

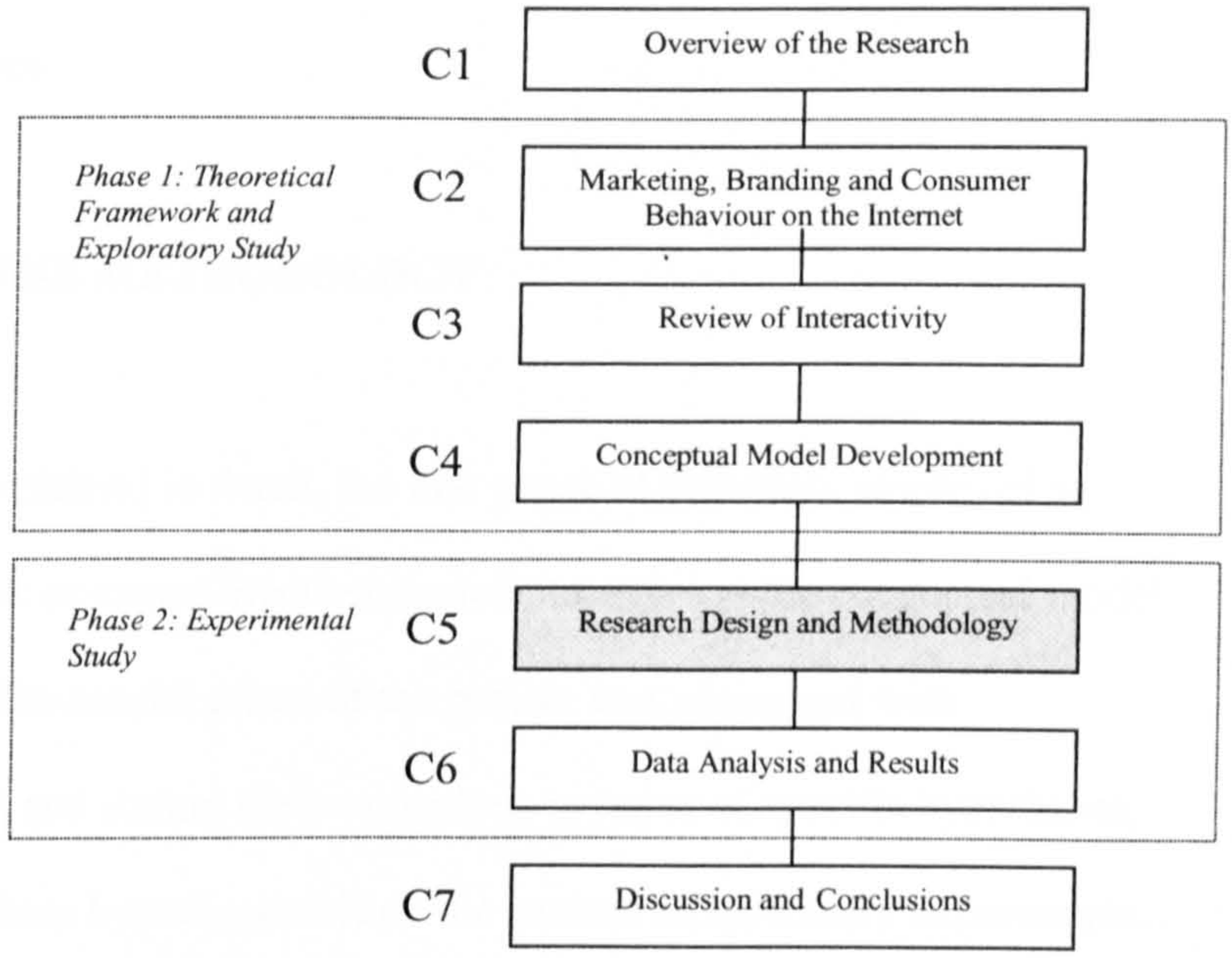
**Proposition 6b**: Consumers who find that a web site is exceeding their expectations will also perceive high value from that web site.

## 4.7 CHAPTER SUMMARY

This chapter explained in detail the findings and the qualitative methodology used for the exploratory study that took place at the beginning of this research process. The fifteen depth interviews conducted by this researcher were all transcribed and systematically and rigorously analysed following 'grounded theory' guidelines. This iterative process of qualitative analysis through open, axial and selective coding as well as using diagrams, resulted in the reduction of large amounts of data regarding a wide range of topics to a more manageable size. The patterns and relationships identified in data allowed the development of an original conceptual model of consumer–brand interactions on the Internet and the related propositions. This chapter outlined the findings in detail with the support of actual quotes from respondents as well as relevant literature.

The next chapter will describe the operationalisation of the conceptual model and constructs developed in this chapter; and the restatement of the propositions presented here into directly measurable hypotheses. It will also explain and justify the details of the quantitative research design and methodology used for the second phase of the study in order to test the operational model.

# CHAPTER 5. RESEARCH DESIGN AND METHODOLOGY




## 5.1 INTRODUCTION

This chapter is the link between the conceptual model and the related propositions described in the previous chapter and the empirical results outlined in the next chapter. Its aim is to give a detailed description and justification for the scales chosen to operationalise the conceptual model and constructs, and the research design utilised for testing the operational model. This chapter does not yet discuss the reliability and validity of this study, which will be reported in the next chapter along with empirical results.

In section 5.2, a brief overview of methodology is given, which is further clarified in subsequent sections in this chapter. Section 5.3 describes the operationalisation of independent and dependent variables in the conceptual model, the choice of specific scales from literature; and the resulting operational model and hypotheses. Section 5.4 provides justification for the research design in terms of the content analysis carried out

for experimental stimuli selection and manipulation; computer laboratory experiments for the application of the stimuli to subjects, and collection of data with group-administered questionnaires.

## 5.2 OVERVIEW OF THE METHODOLOGY

As the previous chapter explained in detail, the first phase of this study employed an exploratory inquiry, as well as extant literature review, to arrive at the conceptual model and related propositions. The second phase of the project was concerned with operationalising the model and stating the propositions in terms of specific hypotheses, and subsequently testing these hypotheses within the context of laboratory experiments. As shown in Chapter 1, methodological eclecticism, i.e, combining qualitative and quantitative methods in a single research study, strengthens the research design by allowing it to capitalise on the advantages of both (Churchill 1995; Bird and Hammersley 1996; Hammersley 1996).

As shown in the conceptual framework, the construct of interactivity was central to this study. Chapter 3 has already discussed the concept of interactivity in various streams of literature. The next section in this chapter will explain how the construct of interactivity was operationalised using two different indicators, namely 'interactive features' and 'perceived interactivity', to measure the interactivity of a web site. The interactive features were measured objectively by content analysis of web sites by this researcher. Content analysis of all car brand web sites determined the total number of interactive features for each brand as an indicator of web site interactivity. Following content analysis, three leading car brands in the UK (Vauxhall, Ford and Volkswagen) were chosen to represent high, medium and low levels of interactive features, respectively.

Participants' controlled interaction with these web sites constituted the stimuli for experiments. 'Perceived interactivity', along with other consumer-based variables in the model, was measured on a 7-point Likert-type scale (Wu 1999) in the group-administered questionnaires during the laboratory experiments. Data from these questionnaires were coded and analysed in SPSS for Windows version 11.5, and the hypotheses emerging from the conceptual model were tested utilising relevant statistical methods within SPSS.

## 5.3 CONSTRUCTS AND OPERATIONAL DEFINITIONS

This section will elaborate on how the constructs within the conceptual framework were defined operationally and how the scales to measure them were chosen from previous literature.

### 5.3.1 The Independent Variable: Interactivity

Interactivity is one of the most distinctive qualities of the Internet medium, which differentiates it from traditional media such as television. As shown in Chapter 3, there is no clear-cut definition of interactivity within the literature, as it is a complex construct with different conceptual and operational definitions. Hence, following a comprehensive literature review from various literature streams, an Internet context-specific conceptual definition of interactivity was proposed in Chapter 3. This definition captured the essence of interactivity as a multitrait concept. Based on this conceptual definition, the construct of interactivity was operationalised with two separate indicators, as explained in the next sections.

The appropriateness of using two separate but related variables as indicators of the theoretical construct of interactivity, namely sender-initiated and receiver-perceived interactivity, has been shown in recent literature (Morrison 1998; McMillan 1999, 2000c; Wu 1999, 2000; Liu 2002; Liu and Shrum 2002; Yin 2002; Macias 2003; McMillan *et al.* 2003). The former is as an indicator of sender-initiated interactivity (e.g. terms such as 'actual', 'technical' or 'structural' interactivity have been used in literature to describe this aspect of interactivity), which can be objectively measured by content analysis of web sites; while the latter is a purely subjective assessment of the level of interactivity as perceived by the users of a web site (e.g. terms such as 'perceived' and 'experiential' have been used in literature to describe this aspect of interactivity). Details of this operationalisation will be given in the following sections.

#### 5.3.1.1 Interactive features as an indicator of 'Structural' Interactivity

Previous literature suggests that the level of the structural or technical interactivity of a web site can be measured by the quantity of interactive features it offers (McMillan 2000c; Rettie 2001; Liu and Shrum 2002). Hence, in this study, the number of 'interactive features' measured objectively via content analysis of web sites, was used as the indicator of the 'structural' interactivity of a web site.

In order to determine all possible interactive features of a web site along the previously determined dimensions of 'choice, continuous exchange of information, customisation, effort users exert, instant feedback, interpersonal communication, monitoring information use, playfulness, responsiveness, two-way communication/reciprocity, and vividness', a thorough literature search from both academic and practitioner literature was conducted. At the time that the content analysis form for the present study was

devised, the most recent and comprehensive example of identifying interactive features of a web site in literature was McMillan's (2000c). In that study, McMillan used content analysis to identify interactive features of some health-related web sites. These features were: e-mail link, toll free number, registration form, survey/comment form, order/purchase form, bulletin board, chat room, search engine, viewer choice (e.g. language), curiosity devices (e.g. Q&A), games, hit counter and publication date. However, given the technological developments and the level of sophistication in most web sites, these thirteen features did not fully represent all possible interactive features. Therefore, a further literature search was conducted, consulting an extensive list of academic papers and trade publications in this area in order to determine the latest technological developments and best practice features (Berthon *et al.* 1996; Abela and Sacconaghi Jr 1997; Ghose and Dou 1998; Ha and James 1998b; McMillan 1998, 2000c; O'Keefe *et al.* 1998; Outing 1998; Palmer and Griffith 1998; Dean 1999; Evans and King 1999; Geiger and Martin 1999; Gilbert *et al.* 1999; Massey and Levy 1999; Misic and Johnson 1999; Sally *et al.* 1999; Simeon 1999; Bauer and Scharl 2000; Chaffey and Edgar 2000; Geerts *et al.* 2000; Liu *et al.* 2000; ComputerWire 2001; Geissler 2001; Pfenning 2001; Simeon 2001).

Table 5-1 below summarises the interactive features identified from extant literature. It also cross-references each feature to the dimensions of interactivity identified in Chapter 3.

## Table 5-1 Summary of interactive features identified from literature

| No | Interactive feature | Detailed description | Source (s) | Related dimension of interactivity as identified in Chapter 3 (please refer to Table 3-1 for cross-referencing) |
|---|---|---|---|---|
| 1 | Search engines | A function that allows visitors to pinpoint the particular information they are interested in. | Ghose and Dou (1998); McMillan (1998); Massey and Levy (1999); Misic and Johnson (1999); Sally et al. (1999); Geiger and Martin (1999); McMillan (2000); Liu et al. (2000); Bauer and Scharl (2000); Simeon (2001); Chaffey and Edgar (2000) | Effort users exert & Monitoring information use |
| 2 | Text-only navigation or no-frames option | Gives choice for faster access to users with slower connection speeds or poor graphics ability | Ha and James (1998); Evans and King (1999); Misic and Johnson (1999); Bauer and Scharl (2000) | Choice |
| 3 | Browser compatibility information/option | Allows visitors with different web browsers to access the full content of the web site. | Ha and James (1998); Geiger and Martin (1999); Chaffey and Edgar (2000) | Choice |
| 4 | Audio / Video | Multimedia presentations such as QuickTime movies, streamline video, and other forms of multimedia (e.g. video, sound, music, graphics) | Berthon et al. (1996); Ghose and Dou (1998); Ha and James (1998); Palmer and Griffith (1998); O'Keefe et al. (1998); Geiger and Martin (1999); Massey and Levy (1999); Dean (1999); Simeon (2001); (Simeon 1999) | Vividness |
| 5 | Product / service information | Up-to-date information about the products and services provided by the company given on web site | Ha and James (1998); O'Keefe et al. (1998); Massey and Levy (1999); Evans and King (1999); Sally et al. (1999); Geiger and Martin (1999); Simeon (2001) | Continuous exchange of information |

| No | Interactive feature | Detailed description | Source (s) | Related dimension of interactivity as identified in Chapter 3 (please refer to Table 3-1 for cross-referencing) |
|---|---|---|---|---|
| 6 | General corporate information | Detailed information about the company and/or group of companies provided on the site | Ha and James (1998); Massey and Levy (1999); Evans and King (1999); Geiger and Martin (1999); Simeon (2001) | Continuous exchange of information |
| 7 | Language / Country choice | Visitors can choose a language or a country | Ha and James (1998); McMillan (2000); Bauer and Scharl (2000) | Choice |
| 8 | Promotional content | Promotional events, such as sales, sweepstakes, prize draws, competitions, etc. held to attract surfers and to encourage surfer participation by special incentives. | Ghose and Dou (1998); Palmer and Griffith (1998); Dean (1999); Geissler (2001); Simeon (2001) | Playfulness |
| 9 | Entertaining content | Quizzes, jokes, cartoons, games, etc. | Ha and James (1998); Ghose and Dou (1998); Massey and Levy (1999); Sally et al. (1999); Geiger and Martin (1999); McMillan (2000); Liu et al. (2000) | Playfulness |
| 10 | Information on stores / dealers | A function that allows users to pinpoint a dealer or shop closest to their residence. | Ghose and Dou (1998); Sally et al. (1999) | Customisation |
| 11 | Shopping online | An option to order products online. | Berthon et al. (1996); Ghose and Dou (1998); Ha and James (1998); Palmer and Griffith (1998); O'Keefe et al. (1998); Evans and King (1999); Geiger and Martin (1999); McMillan (2000); Simeon (2001) | Choice |

| No | Interactive feature | Detailed description | Source (s) | Related dimension of interactivity as identified in Chapter 3 (please refer to Table 3-1 for cross-referencing) |
|---|---|---|---|---|
| 12 | Customised products / services | An option for users to customise the products/services on offer to their personal preferences. | Sally et al. (1999); Gilbert *et al.* (1999) | Customisation |
| 13 | Site index / site map | Clear indication of site's contents | Evans and King (1999); Sally et al. (1999); Bauer and Scharl (2000) | Choice |
| 14 | Menu bar on first page | Provides a brief description of all the sections within the site | McMillan (1998); Geissler (2001) | Choice |
| 15 | Menu bar on subsequent pages | Helps visitors to quickly see other sections on the site. Creates easier navigation. | McMillan (1998); Palmer and Griffith (1998); Misic and Johnson (1999); Geissler (2001) | Choice |
| 16 | Hot links back to home page | Easy navigation function that takes the visitor back to the home page with one click. | Raman (1997); McMillan (1998); Palmer and Griffith (1998); Evans and King (1999); Misic and Johnson (1999); Dean (1999); Geissler (2001) | Choice |
| 17 | Web site personalisation | Tailor site content and/or style to customers' interests; and offer dynamic, personalised customer web pages. | Ha and James (1998); Sally et al. (1999); Liu et al. (2000); Bauer and Scharl (2000); Geerts et al. (2000); Pfenning (2001); Chaffey and Edgar (2000) | Customisation |
| 18 | Customer survey / questionnaire | E-form survey or questionnaire designed for measuring customer satisfaction about firm's offerings and service. | Berthon et al. (1996); Abela and Sacconaghi Jr (1997); Ghose and Dou (1998); Ha and James (1998); Outing (1998); Gilbert *et al.* (1999); Evans and King (1999); McMillan (2000); Bauer and Scharl (2000) | Two-way communication / Reciprocity |

| No | Interactive feature | Detailed description | Source (s) | Related dimension of interactivity as identified in Chapter 3 (please refer to Table 3-1 for cross-referencing) |
|---|---|---|---|---|
| 19 | Online forms | For customer feedback, inquiries, complaints or suggestions | Berthon et al. (1996); Ghose and Dou (1998); McMillan (1998, 2000); Geiger and Martin (1999); Massey and Levy (1999); Evans and King (1999); Dean (1999); Sally et al. (1999); Bauer and Scharl (2000); Simeon (2001) | Instant feedback |
| 20 | Contact information | Address, telephone, fax, e-mail | Berthon et al. (1996); Ha and James (1998); O'Keefe et al. (1998); Outing (1998); Massey and Levy (1999); Evans and King (1999); Misic and Johnson (1999); Geiger and Martin (1999); McMillan (2000); Bauer and Scharl (2000); Geissler (2001); Simeon (2001); Chaffey and Edgar (2000) | Two-way communication / Reciprocity |
| 21 | Free-phone number / Callback option | Allows customers easy reciprocal information | Ha and James (1998); McMillan (2000) | Two-way communication / Reciprocity |
| 22 | Registration forms | Visitors can register with site in order to create a more personalised interaction. | Berthon et al. (1996); Ha and James (1998); McMillan (2000); Geissler (2001); Simeon (2001) | Effort users exert |
| 23 | E-mail updates / newsletters | Send tailored e-mail updates and offers or newsletters to registered customers. | Berthon et al. (1996); Dean (1999); Gilbert et al. (1999); Pfenning (2001) | Continuous exchange of information |
| 24 | Customer support / service area | Special area dedicated to customers for customer service and support. | Palmer and Griffith (1998); Evans and King (1999); Sally et al. (1999) | Effort users exert |
| 25 | Security information | Security and protection measures. | Berthon et al. (1996); O'Keefe et al. (1998); Evans and King (1999); Sally et al. (1999); Liu et al. (2000); Geissler (2001); Simeon (2001) | Continuous exchange of information |

| No | Interactive feature | Detailed description | Source (s) | Related dimension of interactivity as identified in Chapter 3 (please refer to Table 3-1 for cross-referencing) |
|---|---|---|---|---|
| 26 | Privacy information | Data protection and user privacy measures. | Evans & King (1999); Liu et al. (2000) | Continuous exchange of information |
| 27 | Ordering information | Detailed information about how to order online or offline, including online product demonstrations that allow consumers to virtually "feel or experience" the product. | Ghose and Dou (1998); Ha and James (1998); Palmer and Griffith (1998); Evans and King (1999); Simeon (2001) | Continuous exchange of information |
| 28 | Help button | A customer service function that provides help in using the site, ordering, etc. | Liu et al. (2000); Bauer and Scharl (2000) | Continuous exchange of information |
| 29 | FAQ's section | Curiosity devices such as FAQ's (Frequently Asked Questions) section to arouse curiosity in visitors. | Ha and James (1998); Sally et al. (1999); McMillan (2000); Bauer and Scharl (2000); Simeon (2001); Chaffey and Edgar (2000) | Continuous exchange of information |
| 30 | Channel support | Alternative offline ways to support search or ordering; e.g. order a catalogue, phone order through a sales representative, etc. | Berthon et al. (1996); Evans and King (1999); Dean (1999); Sally et al. (1999); Simeon (2001) | Choice |
| 31 | "Your account" / "Log in" button | A link that takes customers to their account or ordering details via a secure login process | Abela and Sacconaghi Jr (1997); Gilbert et al. (1999); Geerts et al. (2000); ComputerWire (2001); Pfenning (2001) | Customisation |

| No | Interactive feature | Detailed description | Source (s) | Related dimension of interactivity as identified in Chapter 3 (please refer to Table 3-1 for cross-referencing) |
|---|---|---|---|---|
| 32 | Shopping basket / trolley | A virtual shopping basket accessible with a click on a icon that holds the details of items intended to be purchased | Sally et al. (1999); Simeon (2001) | Customisation |
| 33 | Order tracking | Customers can track the history and status or whereabouts of their orders online in real time. | Berthon et al. (1996); Ghose and Dou (1998); Sally et al. (1999); Liu et al. (2000); Geerts et al. (2000) | Customisation |
| 34 | Quick ordering option | Existing customers can order further purchases quickly with a single click without having to enter their personal information again. | Geissler (2001) | Choice |
| 35 | Pricing and availability | Explicit information on prices of products and services; and real-time availability of stock | O'Keefe et al. (1998); Sally et al. (1999); Liu et al. (2000); Simeon (2001) | Continuous exchange of information |
| 36 | Alternative payment options | Supports online and offline payments with debit card, credit card, cheques, etc. | Berthon et al. (1996); O'Keefe et al. (1998); Sally et al. (1999) | Choice |
| 37 | Delivery information | Explicit information on shipment costs and details. | Sally et al. (1999) | Continuous exchange of information |
| 38 | Returns policy | Explicit information about warranties and returns. | Dean (1999); Sally et al. (1999); Geissler (2001) | Continuous exchange of information |

| No | Interactive feature | Detailed description | Source (s) | Related dimension of interactivity as identified in Chapter 3 (please refer to Table 3-1 for cross-referencing) |
|---|---|---|---|---|
| 39 | Other improvements on customer service | Industry or brand specific improvements on customer service such as personal choice helper; a function that can make relatively sophisticated recommendations on consumers' choices based on their input of preferences and decision criteria. | Abela and Sacconaghi Jr (1997); Ghose and Dou (1998) | Customisation |
| 40 | Hit counter | An electronic counter which updates the number of visitors to a web site | McMillan (1998, 2000); Massey and Levy (1999); Misic and Johnson (1999) | Continuous exchange of information |
| 41 | Publication date | Presence of a publication date or last update message | McMillan (1998, 2000); O'Keefe et al. (1998); Massey and Levy (1999); Misic and Johnson (1999); Bauer and Scharl (2000); Geissler (2001) | Continuous exchange of information |
| 42 | Cookies | Cookie files are packets of data transmitted by a Web server to the hard drive of a user's computer. These allow information collection by web sites, which help with personalisation. | Abela and Sacconaghi Jr (1997); Ha and James (1998); Geiger and Martin (1999) | Customisation & Monitoring information use |
| 43 | Chat rooms / synchronous discussion | A virtual community function that allows web site users to participate in online, real-time communication with each other. | Abela and Sacconaghi Jr (1997); Ghose and Dou (1998); Ha and James (1998); Outing (1998); Massey and Levy (1999); Evans and King (1999); Sally et al. (1999); McMillan (2000); Geissler (2001); Simeon (1999) | Interpersonal communication & Responsiveness |

| No | Interactive feature | Detailed description | Source (s) | Related dimension of interactivity as identified in Chapter 3 (please refer to Table 3-1 for cross-referencing) |
|---|---|---|---|---|
| 44 | Newsgroups/ asynchronous discussion | A virtual community function that allows web site users to post messages in newsgroups for asynchronous communication. | Ghose and Dou (1998); McMillan (1998); Outing (1998); Massey and Levy (1999); Dean (1999); Sally et al. (1999) | Interpersonal communication & Responsiveness |
| 45 | Bulletin Board | A virtual community function that allows web site users to post messages on bulletin boards for asynchronous communication. | Ghose and Dou (1998); McMillan (1998, 2000); Massey and Levy (1999); Sally et al. (1999); Liu et al. (2000); Simeon (1999, 2001) | Interpersonal communication & Responsiveness |
| 46 | Other ways for users to add / share information | Other virtual community functions, such as a section for visitors to add content to the site, e.g. to write their stories, opinions, etc. | Ghose and Dou (1998); Outing (1998); Massey and Levy (1999) | Interpersonal communication & Responsiveness |

All 46 items outlined in Table 5-1 above were included in the content analysis form[19] to measure the 'interactive features' in a web site as the first indicator of the interactivity construct.

[19] Please see Appendix 2a for a copy of the content analysis form.

### 5.3.1.2 Perceived interactivity

Downes and McMillan (2000) conducted a qualitative study and proposed a conceptual definition of interactivity based on participant-based dimensions and message-based dimensions. This differentiation reflects the 'sender versus receiver' aspect of communication, which indicates that certain dimensions of interactivity could be measured from receiver's 'perceived' point of view as well as objectively. McMillan (2000a) suggested that interactivity may reside primarily in the eye of the beholder; and that individual perceptions are an important indicator of interactivity. Morrison (1998) pointed out that the concept of interactivity from a consumer perspective has been investigated on a limited basis. Based on her qualitative research, Morrison posits two components of how consumers define interactivity: 1) it is associated with some degree of activity on the users' part, and 2) it offers consumers more control.

The differentiation between 'sender-initiated interactivity' and 'receiver-perceived interactivity' has been more explicitly proposed by Newhagen *et al.* (1995), who introduced the concept of perceived interactivity as a subjective state perceived by the receiver of messages. Newhagen *et al.* conceptualised perceived interactivity as a two-dimensional construct based on internal self-efficacy and external system efficacy.

Based on Newhagen *et al.*'s conceptualisation, Wu (1999) defined perceived interactivity as a two-component construct consisting of navigation and responsiveness. Wu (1999) conducted an empirical study to examine the relationship between perceived interactivity and attitude toward the web site, and found that users' attitude toward the web site is positively related to their perceived interactivity of the web site. Wu (1999) developed a battery of ten Likert-type scale items to measure perceived interactivity,

and established that the inter-item reliability coefficients (alphas) were at acceptable levels. Therefore, Wu's (1999) scale was incorporated in the questionnaire in order to measure perceived interactivity. (Please see Question 4 in Part 2 of the questionnaire)

### 5.3.2 The Dependent Variables

As discussed in the previous chapters, interactivity is the central construct in this study, hypothesised to affect consumer perceptions and attitudes. The dependent variables in the model are the 'excitement dimension of brand personality', 'involvement with the brand', 'perceived control', 'expectations', 'perceived value of the web site', and 'attitude towards the web site'. It is proposed that the level of interactivity in a web site would directly influence the excitement dimension of brand personality, involvement with the brand, perceived control, and expectations from the web site. However, these variables, in turn, affect the perceived value of the web site, which then determines the attitude towards the web site. All the relationships between these variables are visually depicted in Figure 5-1 in the form of an operational model and hypotheses. First, the scale selection for each construct will be explained below.

#### 5.3.2.1 Brand Personality

Jennifer Aaker's (1997) definition and operationalisation of the brand personality construct was adopted for this research, as it is the most valid and widely accepted one within marketing and branding literature. Aaker defines brand personality as "*the set of human characteristics associated with a brand*" (p.347). Her 42-item scale, measuring five dimensions of sincerity, excitement, competence, sophistication and ruggedness, is generally accepted to be a reliable, valid and generalisable measure in branding

literature. The 'Excitement' dimension of Aaker's brand personality scale is particularly relevant to the Internet context, as it comprises of the following traits: daring, trendy, exciting, spirited, cool, young, imaginative, unique, up-to-date, independent and contemporary. Most of these traits are inherently present in the Internet context. Hence, it is proposed that there would be a difference between the scores on the excitement dimension of a brand's personality offline versus online, as well as for different levels of interactivity.

For further research on the antecedents of brand personality, Aaker suggests systematically manipulating the variables and then measuring their impact on a brand's personality. It can be argued that the Internet context and the construct of interactivity are the newly emerging marketing variables that could have an effect on consumers' perception of brand personality. Therefore, by measuring the existing brand personality (offline) and then online based on the brand's web site, one could see the effect of the online medium on brand personality.

Question 5 in Part 1 and Question 7 in Part 2 in the questionnaire measured the excitement dimension of brand personality (11 items) on a 7-point Likert scale, before and after viewing the web site respectively.

#### 5.3.2.2 Involvement

Engel *et al.* (1995) cite Zaichkowsky's (1985) personal involvement inventory (PII) as a useful instrument to measure the involvement construct. PII is also included in Bearden *et al*'s (1993) 'Handbook of Marketing Scales'. Zaichkowsky defined involvement as a person's perceived relevance of the object based on inherent needs, values and interests.

As this definition recognises past definitions of involvement, and is a context-free measure applicable to involvement with products, advertisements and purchase situations (Bearden *et al.* 1993), it is the most suitable scale to use in this study. The PII was originally designed as a unidimensional scale composed of 20 semantic differential items on seven-point scales. Zaichkowsky revised this scale in 1994, and reduced the items from twenty to ten (Zaichkowsky 1994). She also extended the construct validation of the PII scale to involvement with advertisements; demonstrated that the PII can be reliably reduced from twenty items to ten items; and showed that the PII can capture emotional and cognitive types of involvement. This revised version of the PII was used in the questionnaire. (Please see Question 6 in Part 1 and Question 6 in Part 2 of the questionnaire)

**Table 5-2 Revised Personal Involvement Inventory**

| | To me (object to be judged) is: | |
|---|---|---|
| important | :--:--:--:--:--:--:--: | unimportant* |
| boring | :--:--:--:--:--:--:--: | interesting |
| relevant | :--:--:--:--:--:--:--: | irrelevant* |
| exciting | :--:--:--:--:--:--:--: | unexciting* |
| means nothing | :--:--:--:--:--:--:--: | means a lot to me |
| appealing | :--:--:--:--:--:--:--: | unappealing* |
| fascinating | :--:--:--:--:--:--:--: | mundane* |
| worthless | :--:--:--:--:--:--:--: | valuable |
| involving | :--:--:--:--:--:--:--: | uninvolving* |
| not needed | :--:--:--:--:--:--:--: | needed |

*indicates item is reverse scored.

(Source: Judith L. Zaichkowsky, "The Personal Involvement Inventory: Reduction, Revision, and Application to Advertising", Journal of Advertising, 23 (December 1994), 70.)

Since this study was conducted, other empirical studies within the Internet marketing or advertising context also used this scale in their studies (Macias 2003; Palanisamy and Wong 2003), and found this measure highly reliable (Cronbach's alphas were 0.873 and 0.92 respectively).

### 5.3.2.3 Perceived Control

The perceived control construct has its roots originally in the field of psychology, and more recently it has been used extensively in human resources field in terms of perceived job control (Spector 1986; Evans and Fischer 1992) along with the concept of employee empowerment (Spreitzer 1995, 1996).

Spector (1986) notes that the control variable plays a significant role in human behaviour, and the extent of control which the individual believes to have over the environment has considerable impact on their perception of that environment and their reactions to it. Within the Internet context, the perceived control construct would have an important role in understanding the interaction between consumers and the online medium.

On the Internet, web site visitors have the ability to modify the order of the presentation of information and links, which gives them the power to customise certain aspects of the content even though they cannot modify the actual content of web pages (Shih 1998). Ariely (2000) concentrated on controlling the information flow in a series of experiments; and concluded that interactive communications that give consumers control over the information flow have a substantial impact on consumers' ability to integrate, remember, and understand inputs to their judgements.

Other studies looking at consumer perceptions of web sites include the construct of 'control' in their investigations as it is theoretically accepted that the Internet gives customers more control over their interactions and choice. Nel *et al.* (1999) investigated the customer perceptions of web sites, and they operationalised the 'control' element by

three statements: "When I explored the site I felt in control", "I felt I had no control while interacting with the site" and "The web site allowed me to control the interaction". These statements were rated on a 5-point Likert scale ranging from 1=strongly disagree, through to 5=strongly agree. This study was based on the construct of 'flow', which accepts the variable of 'control' as one of the four components of flow. The original instrument as introduced by Webster *et al.* (1993) included only one item per component of flow. The authors do not explain why they created these three items all using the word 'control'. In fact, the additional two items are just reworded versions of the original item. It seems that the authors tried to turn a single item scale to a multi item scale without any attempts at justifying the validity and reliability of the new scale. Due to this methodological weakness, and the fact that the conceptual foundation of the present study had not been based on the construct of flow, it was decided not to use this instrument.

Koufaris *et al.* (2002) conducted an empirical study into consumer behaviour in electronic commerce, and they found that a Web-based company must provide customers with both an enjoyable experience and high levels of perceived control to entice them to return. The authors suggest that certain site features, such as the availability of internal search engines, intelligent agents and quick, automated purchasing enable customers to enjoy higher levels of control and convenience. In their survey, the authors measured perceived control with only a single item scale with this statement: "During my visit to XYZ I felt in control." Single item scales are generally not recommended in marketing methodology literature, as they cannot yield reliability measures. Hence, this scale was rejected.

Another study used Havlena and Holbrook's (1986) reduced set of Pleasure-Arousal-Dominance (PAD) items for dimension of dominance (Novak *et al.* 1999). Mehrabian and Russell created the original 'Dimensions of Emotions' scale in 1974 (Mehrabian and Russell 1974), where they characterised consumers' emotional reactions by three response dimensions of pleasure, arousal and dominance; and they conceptualised these dimensions to be relatively independent from one another (Bearden *et al.* 1993). Eroglu *et al.* (2001) argue that in the online context, the Dominance dimension of the PAD would be relevant, as consumers online have increased control over the shopping situation. Havlena and Holbrook (1986) looked at how the PAD dimensions related to various consumption experiences. They reduced the PAD items from 18 to 12 and concluded that the new reduced item scale was a highly valid and reliable instrument for assessing emotions towards consumption experiences. The resulting instrument for the dimension of 'dominance' was a 7-point bipolar adjectival scale measuring 4 semantic differential items. Item scores were summed to form the index for this dimension. It was decided to use this 4-item scale in the questionnaire to measure the level of perceived control, as it is a grounded, valid and reliable instrument. (Please see Question 3 in Part 2 of the questionnaire)

#### 5.3.2.4 Expectations

The concept of expectations is a very complex area where there is no consensus; and several different definitions and conceptualisations exist. The concept was first studied in the 1930s within the psychology field. According to Tolman (1932), as cited in van Raaij (1991, p.402), people learn expectations from memories of actual experiences, perceptions of current stimuli, inferences drawn from related experiences and information from others. *Intentional expectations* are expectations that are at least

partially under one's own control, which means they are at least partly dependent on one's own performance. *Contingent expectations* refer to future contingencies where the individual has no control, and cannot change these events by one's own efforts. In that sense, intentional expectations are related to the internal dimension of the 'locus of control' construct, and the contingent expectations refer to the external locus of control.

A more recent view on the concept of expectations in relation to satisfaction resulted in the expectation-disconfirmation paradigm, which assumes that expectations are activated through disconfirmation (Oliver 1980). According to this model, first, the consumers form pre-purchase expectations. Then they evaluate the actual performance of the product or service. In the third step, they compare expectations with actual performance, and finally they either confirm or disconfirm them. The degree of confirmation / disconfirmation determines the level of customer satisfaction / dissatisfaction. Therefore, this model accepts expectations as the antecedent to satisfaction. Services marketing literature usually works within this expectation-disconfirmation paradigm, but adds the construct of 'service quality' to the equation. Parasuraman *et al.*'s (1988) well-known SERVQUAL instrument is an example for the two-stage measurement of expectations and perceptions in the services context. Later, Zeithaml *et al.* (1993) stressed the consensus in literature about the concept of customer expectations serving as standards for comparing experiences and evaluating satisfaction or quality.

Customer satisfaction measurement scales are grouped into three broad categories: performance, disconfirmation and satisfaction scales (Devlin *et al.* 1993). It is recommended in literature to choose disconfirmation scales in preference to the others because they incorporate the well known disconfirmation paradigm, and they compress

the measurement of expectations and perceptions into one succinct question, where the respondent simply rates the service with respect to their own expectations (Devlin *et al.* 1993; Danaher and Haddrell 1996; Rust *et al.* 1999). Devlin *et al.* (1993) also pointed out that the five-point expectation scales consistently result in high reliability and validity scores (coefficient alpha=.80-.90) for questionnaires, discriminating service levels without being too difficult to use by respondents. Danaher and Haddrell (1996) further demonstrated that the five-point disconfirmation scale, as recommended by Devlin *et al.* (1993), would have better predictive validity than the three-point scale (worse than / about as / better than expected).

One of the propositions that emerged from the exploratory interviews during the first phase of this study was that consumers generally expect more from brands online as opposed to offline. This imposing argument about the Internet as a medium cannot be confirmed without an aggregate index of consumer expectations across all brands operating online and offline, which is beyond the boundaries of this project. However, the same proposition can be tested at the individual brand level, i.e. consumers' expectations of a brand online would be influenced by the level of interactivity of that brand's web site. To measure the expectations construct, respondents were asked to rate the brand web site with respect to their expectations on a 5-point Likert scale (much worse than / worse than / about as / better than / much better than expected) as recommended by Danaher and Haddrell (1996). (Please see Question 1 in Part 2 of the questionnaire)

### 5.3.2.5 Perceived Value

General branding theory describes the role of added values as differentiating the product or service offering from those of the competitors, and justifying the price premium brands charge to consumers (Kapferer 1992; de Chernatony and McDonald 1998). The Internet environment seems to challenge this basic concept in terms of the price premium. Brands still need to add values on the Internet in order to differentiate themselves from competitors and gain sustainable competitive advantage. However, whether they can charge their customers a price premium for these added values is a different question, and is beyond the scope of this project.

The findings of an empirical study on consumer reactions to electronic shopping suggested that consumers request value-added services and offerings on the Internet, which cannot be easily provided through other retail channels (Jarvenpaa and Todd 1997). This finding clearly supports the view that brands need to add unique values on the Internet.

Internet specific measures of the 'added value' construct are rare. Ho (1997) developed a framework to evaluate web sites from a customer's perspective of value-added; and consequently conducted a global study covering 1800 business-to-consumer web sites in order to create a profile of commercial use of the World Wide Web in 1996. He classified the business purpose of commercial web sites into three categories: promotion of products and services, provision of data and information, and processing of business transactions. Then he identified four types of different added values: timely, custom, logistic and sensational. Therefore, his framework consists of a 3x4 matrix of the above listed dimensions. The author uses a measure of 'breadth' in the value-adding features,

which simply is the number of purpose-value categories covered by a web site, and then he ranks different industries world-wide and within country groups according to their level of added value. Ho indicates that this list is not exhaustive or definitive, and as the Internet technologies develop there would be additional features to measure. However, Ho's argument is flawed at the fundamental level because he defines the construct as a customer-based one, but the researcher objectively carries out the actual evaluation himself rather than looking at consumers' perceptions.

Another construct, 'perceived value' has been developed in literature referring to the relationship between performance expectations and price, and can be measured by the concept 'value for money' (de Chernatony and McDonald 1998). However, in terms of the evaluation of brand web sites, the price variable is irrelevant. The perceived value of web site characteristics can be evaluated in terms of the 'time and effort' that the consumers spend on viewing the web site, rather than the price of the product or service on offer. An article investigating the nature, roles and sustainability of added values (de Chernatony *et al.* 2000) proposes that added value is a multidimensional construct which includes functional and emotional benefits perceived by consumers. Another study emphasises that little research has addressed the value construct itself and that there is no well-accepted value measure (Sweeney and Soutar 2001). These authors developed a 19-item measure (PERVAL) based on four dimensions – emotional, social, quality/performance, and price/value for money - to assess customers' perceptions of value of a consumer durable good at a brand level. The authors point that each value dimension plays an important and separate role in forming attitudes and behaviours in the purchase process. However, as pointed out earlier, the 'price/value for money' dimension is not relevant for the value perceived from a brand's web site; hence, this instrument seems to be not applicable to this study.

When conceptualising the perceived value construct within the Internet context, the following three dimensions emerged from literature review and the empirical data from the exploratory interviews carried out in the first phase of this study.

**1) informational value** (Ho 1994; Rayport and Sviokla 1994; McKenna 1995; Ainscough and Luckett 1996; Moore and Andradi 1996; Hammond *et al.* 1997; Blakeman 1997; Hoffman and Novak 1997; Mitchell 1997; Raman 1997; Breitenbach and Van Doren 1998; Eighmey and McCord 1998; Ng *et al.* 1998; Barnes and Vidgen 2000; Brand Strategy 2002; Page and Lepkowska-White 2002; Rowley 2004a);

**2) entertainment value** (Hammond *et al.* 1997; Breitenbach and Van Doren 1998; Eighmey and McCord 1998; Dayal *et al.* 2000; Goodson *et al.* 2000; Childers *et al.* 2001; Kania 2001; Page and Lepkowska-White 2002; Rowley 2004a) and;

**3) relational / interactional value** (Rayport and Sviokla 1994; McKenna 1995; Mehta and Sivadas 1995; Ainscough and Luckett 1996; Kalakota and Whinston 1996; Pearson 1996; Alba *et al.* 1997; Larsson and Lundberg 1998; Leong *et al.* 1998; McGovern 1999; Lynn *et al.* 1999; Walsh and Godfrey 2000; Rowley 2004a).

Rayport and Sviokla (1995) were the first to talk about information as a source of value within the Internet context. They talked about the traditional 'value chain' model, which describes a series of value-adding activities connecting a company's supply side with its demand side, and aiding managers to redesign their internal and external processes to improve efficiency and effectiveness. The authors point out that this model "*treats information as a supporting element of the value-adding process, not as a source of value itself*" (p.76). They then give the example of Federal Express as a pioneer company who created added value with information by allowing customer to track the whereabouts of their packages online.

Hammond *et al.* (1997) explored the differences between novice and experienced Web users in terms of their appreciation of the Web's entertainment and informational value. Following a literature review on shopping behaviour, media effects and domain expertise, the authors developed 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree' with 5 items to measure informational value and another 5 items to measure entertainment value. However, no information was given in this paper as to the reliability and validity of this scale.

Another study, which is seminal in nature and widely referenced within the Internet-related marketing literature, examined the audience experience associated with commercial web sites (Eighmey and McCord 1998). An 80-item scale was created to rate five web sites. Exploratory factor analysis identified the following factors as being most representative for audience impressions of these web sites: entertainment value, personal relevance and information involvement. Two emergent factors of personal involvement and continuing relationship were also identified. The authors conclude that information needs to add value in an entertaining context and that it also becomes a relationship on the Internet. Similarly, Mechitov *et al.* (2001) identified 'supplying information' as the primary function, and the 'entertainment value' as a second general criterion of any web site.

From the exploratory interviews, different ways of adding value to brands on the Internet were identified, which included customisation, entertainment, creating a valuable brand experience, free offerings, information / education, building relationships, reduced costs, customer service, empowering the customers and building online communities. Of these items, 'reduced costs', i.e. reduced prices, is shopping-specific, and therefore is not relevant to web sites that do not offer e-commerce. The

items of customisation, creating a valuable brand experience, building relationships, customer service, empowering the customers and building online communities are all related to the 'continuing relationship' dimension identified by Eighmey and McCord (1998).

A more recent series of work by Stuart Barnes and Richard Vidgen from the University of Bath contributed to literature by creating an original instrument named "WebQual". This instrument has been under development since 1998 and has evolved via a process of iterative refinement in different e-commerce domains. (Barnes and Vidgen 2000, 2001a, 2001b, 2001c). The latest instrument, WebQual 4.0 (Barnes and Vidgen 2001c), is a 22-item scale, based on three dimensions: usability, information quality and interaction quality. WebQual 4.0 captures the informational and interactional value, and has the additional dimension of 'usability', which incorporates the navigational and design quality of a web site.

More specifically, the authors define these three components of the instrument as follows:

- **Usability.** Qualities associated with site design and usability, for example, appearance, ease of use and navigation, and the image conveyed to the user.
- **Information quality.** The quality of the content of the site: the suitability of the information for the user's purposes, e.g. accuracy, format and relevancy.
- **Interaction quality.** The quality of the service interaction experienced by users as they delve deeper into the site, embodied by trust and empathy; for example, issues of transaction and information security, product delivery, personalisation and communication with the site owner (pp.24-25).

The development of WebQual has been grounded in marketing, human-computer interaction and information systems literature streams, and has been empirically tested in different domains, e.g. bookshops, auctions, business school web sites; and shown to be a valid and reliable instrument for assessing user perceptions of the value and quality of web sites. It also covers all the value dimensions (except for entertainment) identified from exploratory interviews and the literature. Hence, it was decided to use this instrument in the questionnaire.

However, the WebQual instrument fails to incorporate the 'entertainment value' dimension, which is widely accepted as an important quality for any web site (Eighmey 1997; Hammond *et al.* 1997; Breitenbach and Van Doren 1998; Eighmey and McCord 1998; Goodson *et al.* 2000; Childers *et al.* 2001). Therefore, Eighmey and McCord's (1998) three items were added to the questionnaire to measure the entertainment value of the web site as perceived by consumers. Eighmey and McCord's work is seminal in nature, as it is the earliest attempt in empirically examining audience experience associated with web sites. Their research is widely cited in web site evaluation literature; and is grounded in the 'uses and gratifications' perspective in mass communication research, which has shown that the entertainment dimension is the leading dimension in audience ratings for television commercials and in the primary use of computer-mediated forms of communication. Their empirical results supported this theory as well, when the entertainment dimension was the factor that accounted for the largest proportion of the total variance in factor analysis.

To summarise, the 22-item WebQual 4.0 scale (Barnes and Vidgen 2001c), and Eighmey and McCord's (1998) 3-item entertainment scale were combined to measure the four components of the Perceived Value construct. (Please see Question 5 in Part 2).

### 5.3.2.6 Attitude toward a website (Aws)

The earliest study that developed a scale to measure attitude toward a web site was conducted in 1999 (Chen and Wells 1999). The purpose of this study was to develop a reliable and valid scale that measured Attitude toward a Website ($A_{ST}$). Chen and Wells's $A_{ST}$ scale is a 5-point Likert scale ranging from 'definitely disagree' (1) to 'definitely agree' (5) measuring six items. The authors argue that this is a unidimensional scale (Cronbach's alpha was 0.92), where all six items taken together can measure Attitude toward the Site ($A_{ST}$). However, the authors do not seem to have grounded their efforts in existing attitude scales, i.e. attitude toward the brand or product. Instead they generated the item pool from psychology and brand personality literature, which raises doubts about content and construct validity of this research. They then reduced the number of items by asking a sample of experienced web users how they would describe "good" and "bad" websites. The resulting items include concepts like relationship, satisfaction, and intention to revisit, which are separate constructs.

Supphellen and Nysveen (2001) devised an alternative scale, where they measured attitude towards the site by the following two items: "What is your overall evaluation of the site?" (very good=7, very bad=1), and "How would you rate the overall quality of the site?" (very good=7, very bad=1). Cronbach's alpha for this scale was 0.91. However, the authors do not give any details of how they devised this scale. The second question about the quality of the web site presents a validity problem, as the 'perceived quality' construct is a separate construct, which is well established in marketing literature, and it does not necessarily measure the attitude toward the web site.

In an attempt to examine the influence of webpage background on commercial effectiveness, Stevenson *et al.* (2000) introduced their concept of 'attitude toward a website ($A_{WS}$)', based on Chattopadhyay and Basu's (1990) 'attitude toward the brand' scale. Stevenson *et al.*'s adaptation resulted in a 7-point Likert scale ranging from "strongly disagree" to "strongly agree" with the following three items: "I like the webpage that I saw", "I think it is a good webpage", and "I think it is a nice webpage". Cronbach's alpha for this scale was 0.93. It was decided to use Stevenson *et al.*'s scale in the questionnaire because it is grounded in classic attitude scales in branding literature; it has the highest level of reliability among the three existing scales; and the construct validity seems to be stronger than the other two scales (Please see Question 10 in questionnaire).

### 5.3.3 Demographics and Control Variables

Demographic data, i.e. gender, age, education level, Internet experience, frequency and duration of Internet browsing, was collected from participants for descriptive purposes. 'Interest in cars' and 'attitude to brand' scales were included in the questionnaire for statistical control purposes.

#### 5.3.3.1 Demographic variables

As already discussed in Chapter 2, demographic variables, such as age, gender, education, and Internet experience have been shown to affect web users' attitudes and behaviour in different empirical studies (Donthu and Garcia 1999; Korgaonkar and Wolin 1999; McMillan 2000a; Smith and Whitlark 2001; Teo 2001; Thørbjornsen *et al.* 2002). The present study used an experimental research design where participants were

randomly allocated to treatment groups in order to control for the extraneous variables such as demographics. Hence, demographic variables are not included in the operational model, and there are no related hypotheses. It was nonetheless decided to collect demographic data from participants, i.e. gender, age, education level, Internet experience, frequency and duration of Internet browsing; for descriptive purposes (Please see Questions 1, 2, 3, 10, 11, 12, 13, 14 and 15 in Part 1 of the questionnaire). Questions relating to Internet experience, frequency of usage and hours of usage were based on Graphic, Visualization & Usability Center's World Wide Web User Surveys, which were seminal in nature, and widely accepted in Internet research providing accurate and relevant demographic data (Kehoe and Pitkow 1999). Categories for the age group variable were taken from the Office of National Statistics.

#### 5.3.3.2 Interest in Cars

As car brand web sites were used as the experimental treatments, it was important to measure the existing interest and involvement levels of the respondents in cars. Oppenheim (1992) warns that any pre-existing interest in a topic among respondents might bias the results, probably by exaggerating the effects of any treatment. In this case, somebody who is highly interested in cars in general, might be predisposed to have strong car brand attitudes or might be more involved in the car web sites regardless of the level of interactivity, which is the experimental variable. Therefore, it was essential to include this measure as a control variable. Srinivasan and Ratchford's (1991) 'interest in cars scale' (Bruner II and Hensel 1996) was used in the questionnaire, which is a six-item, seven-point Likert-type measure of the interest a person reports having in cars. Srinivasan and Ratchford (1991) reported an alpha of .86 for the scale as a reliability indicator (Please see Question 8 in Part 1).

### 5.3.3.3 Attitude toward the brand

Existing attitude toward the brand needs to be controlled for as any extreme attitudes (good or bad) might predispose the subjects to extreme attitudes towards the brand's web site regardless of the interactivity level. It was decided to use Grossbart *et al.*'s (Grossbart *et al.* 1986) three-item, seven-point semantic differential scale (good / bad, negative / positive, unfavourable / favourable) to measure the attitude toward the brand. The authors reported an alpha value of .96 for this scale. (Please see Question 7 in Part 1 and Question 8 in Part 2 of the questionnaire. The open-ended Question 9 in Part 1 asking for additional comments about the brand in question could also potentially reveal existing attitudes.) Recent research into attitude towards web sites validates this decision to use the attitude towards the brand variable as an extraneous variable, which is beyond the control and scope of the research that needs to be controlled for as it is linked to the attitude towards the web site construct (Peng *et al.* 2004).

## 5.3.4 Summary of measures

The table below gives an overview of the operational measures.

**Table 5-3 Operationalisation of model constructs**

| Constructs | Components | Operational measures |
|---|---|---|
| Interactive features | Choice, continuous exchange of information, customisation, effort users exert, instant feedback, interpersonal communication, monitoring information use, playfulness, responsiveness, two-way communication/reciprocity, vividness | 46-items identified from academic and practitioner literature, as listed in Table 5-1. |
| Perceived Interactivity | Navigation & responsiveness | 10-item scale (Wu 1999) |

| Constructs | Components | Operational measures |
|---|---|---|
| Brand Personality | Excitement | 11-item scale (Aaker 1997) |
| Involvement | - | 10-item Revised PII (Zaichkowsky 1994) |
| Perceived Control | - | 4-item scale (Mehrabian and Russell's PAD scale (1974) as revised by Havlena and Holbrook (1986)) |
| Expectations | - | Disconfirmation scale (Danaher and Haddrell 1996) |
| Perceived Value (as a composite of the four subscales) | Usability | 8-item scale (WebQual 4.0, Barnes & Vidgen 2001) |
| | Information Quality | 7-item scale (WebQual 4.0, Barnes & Vidgen 2001) |
| | Interaction Quality | 7-item scale (WebQual 4.0, Barnes & Vidgen 2001) |
| | Entertainment Value | 3-item scale (Eighmey & McCord 1998) |
| Attitude toward the Website ($A_{WS}$) | - | 3-item scale (Stevenson *et al.* 2000) |
| Attitude toward the brand | - | 3-item scale (Grossbart *et al.* 1986) |
| Interest in cars | - | 6-item scale (Srinivasan and Ratchford 1991) |

### 5.3.5 Operational Model and Hypotheses

Figure 5-1 below presents the operational model for the effect of web site interactivity on online consumer responses, along with specific hypotheses, which propose relationships between the variables in the model.

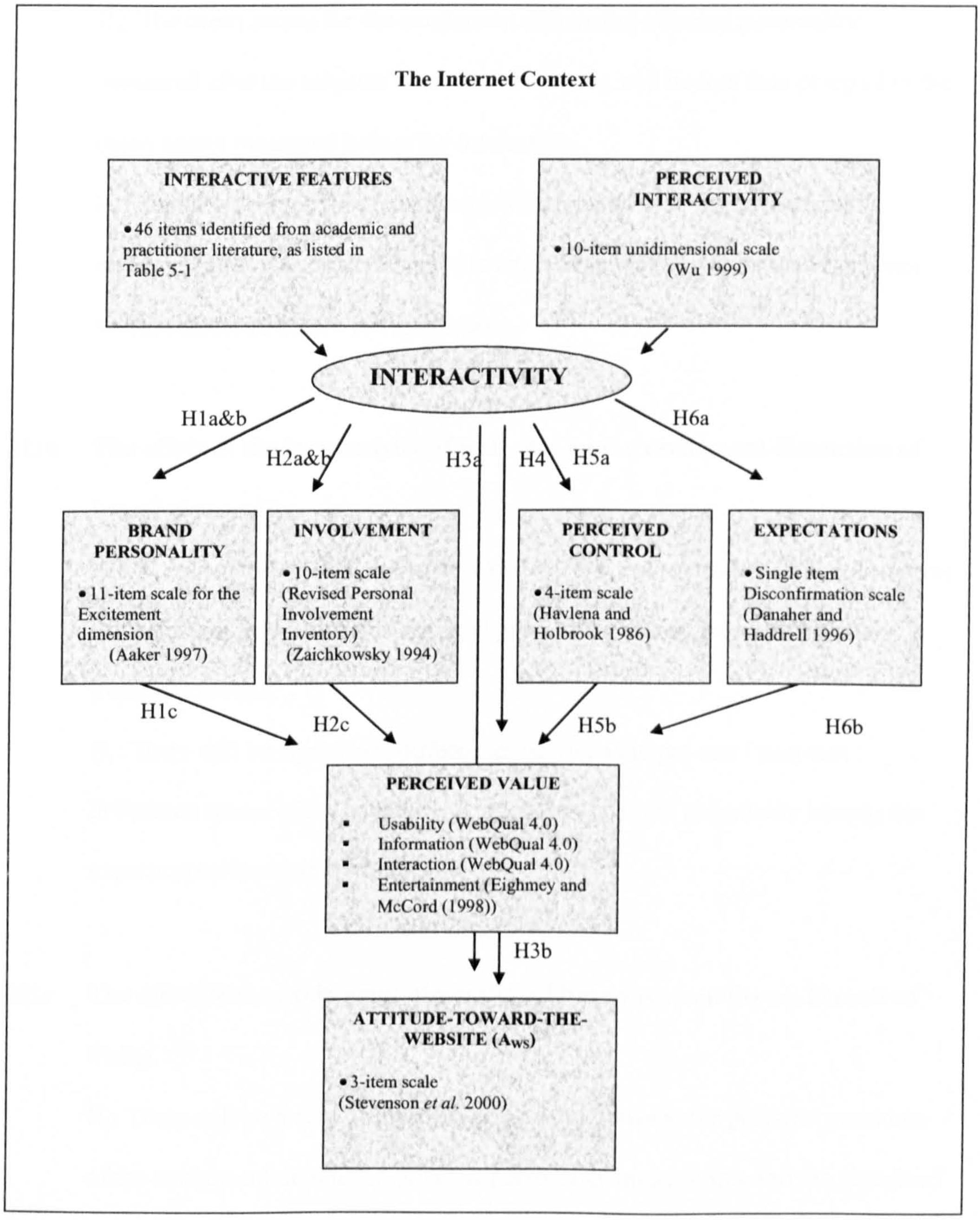



**Figure 5-1 Operational model for the interaction of consumers and brands on the Internet**

The propositions outlined in Chapter 4 are presented below as testable hypotheses:

**H1a The effect of web site interaction on the excitement dimension of brand personality.**

$H_0$: The mean scores for the excitement dimension of brand personality measured after the subjects' web site interaction will be less than or equal to the mean scores measured before the interaction.

$H_1$: The mean scores for the excitement dimension of brand personality measured after the subjects' web site interaction will be higher than the mean scores measured before the interaction.

**H1b The effect of the interactivity of web sites on the excitement dimension of brand personality.**

$H_0$: There will be no differences between the pre-test / post-test difference scores of the excitement dimension of brand personality among the experimental treatment groups.

$H_1$: There will be significant differences between the pre-test / post-test difference scores of the excitement dimension of brand personality among the experimental treatment groups.

**H1c The effect of the excitement dimension of brand personality on Perceived Value.**

$H_0$: There will be a zero or negative correlation between the post-test measures of the excitement dimension of brand personality mean scores and the perceived value mean scores.

$H_1$: There will be a significant positive correlation between the post-test measures of the excitement dimension of brand personality mean scores and the perceived value mean scores.

**H2a The effect of web site interaction on involvement with the brand.**

$H_0$: The mean scores for the involvement with the brand measured after the subjects' web site interaction will be less than or equal to the mean scores measured before the interaction.

$H_1$: The mean scores for the involvement with the brand measured after the subjects' web site interaction will be higher than the mean scores measured before the interaction.

**H2b The effect of the interactivity of web sites on involvement with the brand.**

$H_0$: There will be no differences between the pre-test / post-test difference scores of involvement mean scores among the experimental treatment groups.

$H_1$: There will be significant differences between the pre-test / post-test difference scores of involvement mean scores among the experimental treatment groups.

**H2c The effect of Involvement with the brand on Perceived Value of the web site.**

$H_0$: There will be a zero or negative correlation between the post-test measures of the involvement mean scores and the perceived value mean scores.

$H_1$: There will be a significant positive correlation between the post-test measures of the involvement mean scores and the perceived value mean scores.

**H3a The effect of the Interactivity of the web site on Attitude toward the web site.**

$H_0$: There will be no differences between the attitude toward the web site mean scores among the experimental treatment groups.

$H_1$: There will be significant differences between the attitude toward the web site mean scores among the experimental treatment groups.

**H3b The effect of Perceived Value of the web site on Attitude toward the web site.**

$H_0$: There will be a zero or negative correlation between the perceived value mean scores and attitude toward the web site mean scores.

$H_1$: There will be a significant positive correlation between the perceived value mean scores and attitude toward the web site mean scores.

**H4 The effect of the interactivity of the web site on Perceived Value of the web site.**

$H_0$: There will be no differences between the perceived value mean scores among the experimental treatment groups.

$H_1$: There will be significant differences between the perceived value mean scores among the experimental treatment groups.

**H5a The effect of the interactivity of the web site on Perceived Control.**

$H_0$: There will be no differences between the perceived control mean scores among experimental treatment groups.

$H_1$: There will be significant differences between the perceived control mean scores among experimental treatment groups.

**H5b The effect of Perceived Control on Perceived Value of the web site.**

$H_0$: There will be a zero or negative correlation between the perceived control mean scores and the perceived value mean scores.

$H_1$: There will be a significant positive correlation between the perceived control mean scores and the perceived value mean scores.

**H6a The effect of interactivity of the web site on expectations from the brand.**

$H_0$: There will be no differences between the expectations mean scores among experimental treatment groups.

$H_1$: There will be significant differences between the expectations mean scores among experimental treatment groups.

**H6b The effect of expectations from the brand on Perceived Value of the web site.**

$H_0$: There will be a zero or negative correlation between expectations and the perceived value mean scores.

$H_1$: There will be a significant positive correlation between expectations and the perceived value mean scores.

**H7 The effect of Interactivity on the means of the joint distribution of brand personality, involvement, perceived control and expectations.**

$H_0$: There will be no differences between the means of the joint distribution of the dependent variables, brand personality, involvement, perceived control and expectations, among experimental treatment groups.

$H_1$: There will be significant differences between the means of the joint distribution of the dependent variables, brand personality, involvement,

perceived control and expectations, among experimental treatment groups.

**H8 The joint effects of brand personality, involvement, perceived control and expectations on perceived value.**

$H_0$: There will be a zero or negative correlation between the combined effects of brand personality, involvement, perceived control and expectations, and the perceived value mean scores.

$H_1$: There will be a significant positive correlation between the combined effects of brand personality, involvement, perceived control and expectations, and the perceived value mean scores.

## 5.4 RESEARCH DESIGN

As explained in the construct operationalisation section earlier, the 'interactive features' variable was operationalised by a content analysis form based on the interactive features identified from the literature. All the other variables in the model were operationalised by the use of existing scales from literature, measured via the questionnaires filled in by all participants during the experiments. The rationale for the choice of experimental stimuli and the design of the computer laboratory experiments are given in the following sections. The relationships between the variables in the model were tested via the hypotheses set above, using relevant statistical methods.

### 5.4.1 Content Analysis

Berelson (1952, p.18) defines content analysis as "*a research technique for the objective, systematic, and quantitative description of the manifest content of*

*communication*". Similarly, Holsti (1969) points that content analysis is a multipurpose research method developed specifically for investigating any problem in which the content of communication serves as the basis of inference. Krippendorff (1980) defines content analysis as a research technique for making replicable and valid inferences from data to their context. Content analysis is suitable for analysing and coding material from face-to-face communications, such as interviews; as well as for documentary research where material from other forms of communications media, such as newspapers and radio are analysed systematically. As the Internet is a new form of communications medium, content analysis can be applied to analysing the content of web sites. Several studies have utilised this method within the Internet context in order to identify different aspects of content in web sites, such as information, interactive functions, commercial goals, and online journalism (Dholakia and Rego 1998; Ghose and Dou 1998; Ha and James 1998a; McMillan 1998; Palmer and Griffith 1998; Evans and King 1999; Massey and Levy 1999; Sally *et al.* 1999; Bauer and Scharl 2000; Perry and Bodkin 2000).

As explained in section 5.3.1.1, the attribute list for content analysis was generated based on the existing measures of interactivity, and a wider search on technological developments and best practices from other academic papers and trade publications. After devising the content analysis form, a decision had to be made regarding the use of real versus fictitious brands as stimuli for the experiments. Either choice can be valid depending on research design, other variables in the model and physical constraints. There are examples of both in Internet related experimental studies. Ruyter, Wetzels and Kleijnen (2001), Thørbjornsen *et al.* (2002), and Menon and Kahn (2002) created fictitious web sites, whereas Balabanis and Vassileiou (1999),Fink and Laupase (2000), Griffith, Krampf and Palmer (2001), Roy, Dewit and Aubert (2001), and McMillan *et*

*al.* (2003) decided to use real brands as stimuli for their experiments. One study even combined the use of both real and fictitious brands in its design (Griffith and Gray 2002). Each choice requires a different way of taking the research further. In the case of using real brands, the next step would be to content analyse the web sites of real brands with the form developed earlier based on 46 interactive features; and decide which ones to use in the experiments as stimuli. On the other hand, the decision to use a fictitious brand would require creating fictitious web sites for that brand varying in terms of their interactive features. The rationale for the decision to use real brands in this study is given below.

#### 5.4.1.1 Rationale for selecting real brands over a fictitious one

In this study, real-life brands were used as the experimental stimuli for two main reasons. First, use of a fictitious brand would have required the creation of fictitious web sites for that brand varying in levels of interactivity. Although this is possible in the case of a low number of features or less complex variables, it was not feasible for this study to create fictitious web sites incorporating the complex interactivity features identified from literature. The nature of the interactive features involved requires very sophisticated web sites to be built in terms of Internet technology. Most of these functions are very technical in nature, and require a high level of web site programming knowledge. Hence, this option was beyond the time and budgetary constraints of this project. Second reason, which was more important than the first one in terms of construct validity and generalisability of this research, was that measuring variables such as 'brand personality', 'involvement' and 'brand attitude' would make more sense within the context of real life brands. Consumers would have a certain level of familiarity or experience with a real brand over relatively long periods, and hence

would rate their attitudes towards that brand in a meaningful way. One cannot expect consumers to have any sensible perceptions of or attitudes to a fictitious brand they encounter for the first time in an experiment for a relatively short period.

#### 5.4.1.2 Rationale for selecting the sampling frame for content analysis

Having decided to use real brand web sites as the experimental stimuli, it was necessary to content analyse some brand web sites to rank them in terms of interactivity. The next decision involved the choice of sampling frame for content analysis. McMillan (2000b) analysed nineteen studies that applied content analysis techniques to the World Wide Web, and concluded that this stable research technique can be applied to a dynamic environment. She notes that search engines may be the best way of generating a sample frame. Yahoo! is generally accepted to be the most reliable directory on the Internet, and most academic studies choose their sampling frames from this directory (e.g. McMillan 1998; Massey 2000; Thelwall 2000; Geissler 2001; Huarng and Christopher 2003). Hence, for this study, Yahoo! UK directory (www.yahoo.co.uk) was used to choose the industry sector for the content analysis. Rather than sampling certain web sites for analysis, it was decided to analyse all the web sites listed within an industry category in order to arrive at a comparative scale that lists each web site in a rank order from low interactivity to high interactivity.

#### 5.4.1.3 Industry Selection

The content analysis form devised for this study can be used to analyse any web site from any industry to show its level of interactive features. For this study, it was important to select an industry where most companies within that industry would not

only have a web presence but also incorporate a range of interactive features to represent a continuum of interactivity for that industry. It was also a consideration to choose an industry where most companies / brands within that industry would be easily recognisable to an average consumer in the UK. At the time of this content analysis, books, travel and cars were the fastest growing and most popular industry sectors on the Internet (Cyberdialogue.com 2000). Hence, all three sectors were considered as likely candidates. However, after closer inspection of the brands included within each of these industries, it was clear that, apart from cars, the lists mostly included new, virtual brands that the average consumer would not be familiar with. Therefore, the automotive industry was decided to be the most suitable for the purposes of this study. A more detailed explanation of the rationale for selecting this industry follows below.

#### 5.4.1.4 Rationale for Selecting the Automotive Industry

The UK automotive industry was chosen as the setting for this study for five reasons. First, it provides a relevant context for this research. Due to the global nature of the automotive industry, most car brands are familiar to consumers. The design of this study required well-known offline brands, which also have an online existence. The automotive industry was suitable in that respect, as most car brands are of a multinational nature, which would be widely recognised by consumers in this country. All car brands have an Internet existence, varying from just corporate and brand information to online sales and customer service. In the exploratory interviews, one expert identified the car industry as a successful example of moving onto the Internet:

*"...the way cars have moved onto the Internet pretty smoothly, pretty elaborately, with generally quite good success."* (Projects Director)

Second, the automotive industry is a large, international industry accounting for a relatively large share of the global economy. Automotive products accounted for 9.2% of all world merchandise trade in year 2000, ranking the share of this industry before agricultural products, clothing, textiles, and iron and steel (World Trade Organisation 2001). Automobile manufacturing is the world's largest manufacturing activity, with over 50 million new vehicles produced each year, and with one in seven people being employed through this industry, either directly or indirectly (Warner 2002).

Third, the automobile is the second largest consumer expenditure item after housing, hence important and involving for consumers (Hupfer and Gardner 1971; Taylor 1981; Vaughn 1986; Ratchford 1987). The purchase of a car is influenced by not only the functional attributes but also the emotional values created around the car brand. A survey of 1,277 auto consumers in 2000 showed that consumers attach significantly greater importance to relationship and emotional benefits than to a car's functional attributes (Chatterjee *et al.* 2002). There is also evidence that the web site of a car brand can be highly involving to the consumer, as one study showed that a positive experience with an auto manufacturer's web site significantly influenced the consumers' purchase likelihood (Vividence 2002).

Fourth, the automotive sector is one of the fastest growing industries on the Internet. Studies conducted by some prominent Internet research and statistics agencies indicate that consumers increasingly use the Internet as both an information source and a transactional channel (Cyberdialogue.com 2000; Jupiter Research Center 2000; Cap Gemini Ernst & Young 2001; Cospirit Research 2001; Jupiter Media Metrix 2001a, 2001b; R.L.Polk & Co. and Jupiter Media Metrix 2001). The auto manufacturers recognise the importance of the Internet channel in terms of the choice and power it

gives to the consumer. Chairman of Volkswagen's Board of Management, Dr Ferdinand Piech, points out that the power of the consumer is growing; and in the future, customers will not only configure and acquire their cars via the Internet but will also choose whether to pick their new cars from dealers or directly from the manufacturer (Piech 2000). The Internet is important to car manufacturers not only in long-term brand reinforcing but also as short-term sales channel, as one study showed that 23% of auto web site visitors buy a car within three months (Bunger 2001). In the years 1999 and 2000, automobile shopping was the third most common product category sought online, behind books and travel (Cyberdialogue.com 2000). The majority of web sites in the category of booksellers and travel industries belonged to either small 'bricks and mortar' companies, or 'virtual' new businesses. In either case, these names were not established brand names that could be recognised by consumers, with the exceptions of a few traditional brands such as WH Smith and Thomas Cook. Hence, these industries would have been difficult to use in this research design.

Finally, car manufacturers are relative latecomers to brand management; hence, more Internet and branding research is needed for this sector. The motor car is the second largest consumer purchase, after housing; however, unlike the FMCG sector, car manufacturers are relative latecomers to brand management as until the early 1990s they managed the overall company brand identity rather than individual vehicle line identities (Ealey and Troyano-Bermudez 1996; Chatterjee *et al.* 2002). Car manufacturers started focusing on building their brand assets in recent years, as brand management was one of the proposed solutions to declining sales and market share (Lienert 1998; Ealey and Troyano-Bermudez 2000). Interestingly, an inspection of the car manufacturers' sites revealed that they chose to promote the company identity on the Internet rather than individual line brands, as the manufacturers do not have separate

web sites for line brands. In most cases, even the domain names for these individual line brands have not been registered. This could be due to the relative newness of the Internet as a communications and transactions medium. In their 1996 article, Ealey and Troyano-Bermudez (1996) advise car manufacturers to exploit opportunities to communicate with customers via innovative and unusual channels. The authors are not talking about the Internet by this statement, as it was not a mainstream communications channel at that time. However, this advice seems to be most relevant today, as all marketing research available indicates that car manufacturers should take advantage of the Internet as an innovative channel. A recent empirical study actually showed that the Internet is a very effective medium for promoting automobiles (Yoon and Kim 2001). This study found that the Internet affected the purchase decision of those consumers who were highly involved with automobiles, and that the Internet was viewed as a medium, which provided fast access to new product information regarding automobiles.

#### 5.4.1.5 Rationale for brand selection within the automotive industry

As pointed out earlier, Yahoo! UK directory (www.yahoo.co.uk) was used as the sampling frame to choose the brands for the content analysis. The total list of web sites for the automotive industry was accessed at the following URL:

http://uk.dir.yahoo.com/Regional/Countries/United_Kingdom/Business_and_Economy/Shopping_and_Services/Automotive/Makers/Vehicles/

As of 15 November 2001, there were forty-nine web sites listed on that directory. As the total list was not very long, content analysis for each of these web sites was conducted, in order to rank the overall sector from highest to lowest level of interactive features, and see the variation in interactivity within the sector. The unit of analysis was the

entire web site, beginning with the home page, or the screen that visitors first see when they access the site.

The content analyses were conducted between 20th and 27th November 2001. Certain web sites (e.g. London Taxis) from the Yahoo list were excluded, as they were not consumer brands. Other were added to the list (BMW (www.bmw.co.uk), Daewoo (www.daewoo-cars.co.uk) and Jaguar (www.jaguar.com/uk)), as they were not originally listed in Yahoo. This resulted in forty-six web sites, which varied from four to forty-six interactive features. The variability of interactive features within this industry sector was good for statistical purposes, as it resembled a normal distribution, with the exception of the Vauxhall web site with forty-six interactive features that stands out from the overall sector. The histogram that represents this variation and the list of all automotive brands can be found in Appendix 2b.

The web site with the least number of interactive features (four) belonged to Cadillac (www.cadillac.uk.com/). The web site with the highest number of interactive features (forty-six) belonged to Vauxhall. (www.vauxhall.co.uk). These two brands could have been chosen to represent the highest level of variation in interactive features. However, the Cadillac brand is a specialist American car brand that is relatively unknown in the UK, and hence may not necessarily invoke any reactions on the average British consumer. Therefore, it was decided to use the UK market share values of car brands as a proxy to brand familiarity, as the market leader brands in this country are likely to have similar brand recognition due to similar levels of advertising and media exposure. According to the Society of Motor Manufacturers and Traders (SMMT), the market leaders in the registration of new cars in the UK in year 2000 were as follows: Ford (16.84%), Vauxhall (13.31%), Peugeot (8.59%), Renault (7.37%), and Volkswagen

(6.95%). (The Society of Motor Manufacturers and Traders 2001) The corresponding level of interactivity for these brands is presented in the following table:

**Table 5-4 Market share and web site interactivity for top 5 UK car brands**

| Car brand | Market share (2000) | Interactive features as of November 2001 |
|---|---|---|
| Ford | 16.84% | 30 |
| Vauxhall | 13.31% | 46 |
| Peugeot | 8.59% | 31 |
| Renault | 7.37% | 24 |
| Volkswagen | 6.95% | 17 |

Assuming that these car brands would have similar brand familiarity levels within the UK consumer population due to similar mass media advertising and promotion levels, Vauxhall was chosen to represent the highest level of interactivity, Ford to represent the medium level of interactivity, and Volkswagen to represent the low level of interactivity.

#### 5.4.1.6 Limitations of using real brands

A perfect experimental design requires the perfect manipulation of the experimental (independent) variables and the perfect control of all extraneous or confounding variables. In reality, this is very difficult to achieve. An unlimited number of extraneous variables might exist, which cannot be directly controlled. However, the randomisation process overcomes this problem in experimental designs. Control of the confounding variables can be a bigger challenge, as the manipulation of the independent variable cannot always be achieved in a perfect manner. In this study, the 'interactive features' was the independent variable, where its levels were determined categorically, i.e. low, medium, high, by content analysis of real brand web sites. The content analysis ranked all the brands in the automotive sector in terms of the total number of their interactive features. Then real brands were selected by this researcher to represent low, medium or

high levels of interactivity. However, because the brands in question were real, each web site had a different general look, in terms of layout, colours, graphics, design, and content. In an experimental design using fictitious brand web sites, it would have been possible to control for these confounding variables by using identical design, content, colours, layout, etc., and only change the number of interactive features in each fictitious web site. This limitation is acknowledged; however, it is also argued that these variables do not present a serious confounding effect due to the following reasons:

1) Automotive industry web sites are information intensive; and research shows that users visit these sites mainly for information search purposes (Cyberdialogue.com 2000; Jupiter Research Center 2000; Jupiter Media Metrix 2001a; R.L.Polk & Co. and Jupiter Media Metrix 2001). It can be argued that design and layout issues would be secondary and not directly relevant when a consumer is looking for information in a task-oriented manner. The information contents of the three sites used in this study (Vauxhall, Ford and Volkswagen) were very similar at the time of the experiments. All brands had similar layout and menu items in their home pages, with the pictures of some of their car models, and detailed menu items, followed by detailed information on each of their car models in subsequent pages.

2) The task sheets used during the experiments required the participants to interact with the web site in a very detailed and specific manner. The customised task sheets for each brand were devised in such a way that the differing level of interactive functions in each site was emphasised. For example, all three web sites included interactive functions such as dealer locator and used car search; hence, it was not possible to differentiate them based on these features. Vauxhall's web site, which represented a high level of interactivity, also included all interactive features relating to product customisation, site

customisation, and online buying, as well as additional features such as an "Advisor" (an intelligent agent guiding the user in product customisation), and real-time traffic information. Ford's web site, representing medium level of interactivity, had interactive features for product customisation, and online buying, but no site customisation. Volkswagen's web site, representing low level of interactivity, had no features for product customisation, site customisation or online buying.

Task sheets for each brand guided the participants in a specific manner to experience these different levels of interactivity. Hence, maximum possible manipulation of the independent variable, as shown in Table 5-5, and control of the confounding variables was achieved.

**Table 5-5 Manipulation of the independent variable 'interactive features'**

| Interactive features | Vauxhall (high interactivity) | Ford (medium interactivity) | Volkswagen (low interactivity) |
|---|---|---|---|
| Product customisation | ✓ | ✓ | ✗ |
| Site customisation | ✓ | ✗ | ✗ |
| Online buying | ✓ | ✓ | ✗ |
| Additional features, e.g. use of intelligent agents, real-time traffic information | ✓ | ✗ | ✗ |

### 5.4.2 Questionnaire Design

Main method of data collection for this study was via the group-administered questionnaires during the experiments. Following Oppenheim's (1992) advice, standard questionnaires were administered to all participants in the group, help was given in a

non-directive way where needed, finished questionnaires were checked for completeness at the end of the experiment sessions. Several decisions were made regarding questionnaire design based on recommendations from methodology literature (Oppenheim 1992; Churchill 1995).

**1) Question content and sequence**

The scales chosen for measuring each construct was explained at the beginning of this chapter. The original wording and presentation of these scales were preserved for reliability and validity purposes. Hence, the question content was not an issue; and the questionnaire design was a matter of the proper layout and sequencing of these already established scales.

Churchill (1995, p.428) recommends the use of simple, interesting and non-threatening questions at the beginning of a questionnaire. As this study was mainly a web site browsing activity from participants' perspective, questions relating to their Internet experience and usage were asked first. These were followed by the pre-test measures for brand personality, involvement and brand attitude; and the control measure of interest in cars. Churchill (1995) stresses the fact that there should be a logical order to the questions. For the pre-test measures, the most logical order was to place the excitement dimension of brand personality as the first scale under the section heading of "Your perceptions about (brand name)". The original instructions for this scale required quickly working through each characteristic, asking for the respondent's first reaction. Following this was the involvement scale, which required a whole page of instructions on how to use the semantic differential scales. On the fifth page, attitude toward the brand was measured with three items, followed by the six-item 'interest in cars' scale. A blank space was also provided for the open-ended question about 'additional comments'

on the brand in question, in order to detect any strong pre-dispositions. It is advised to ask for classification information, such as demographics, last in the questionnaire. All demographic data questions were laid out on a single page as the last page of Part 1. Demographic details were kept to minimum; and sensitive information, such as race, religious affinity or income, were avoided, as these variables were not hypothesised to have any bearing on the perception and attitude measures in the study. An instruction was placed at the bottom of that page asking the respondents to stop and refer to the task list, in order to avoid exposure to post-test measures prior to web site interaction.

After browsing the web sites following the specific instructions in the task list, participants were asked to fill in Part 2 of their questionnaires. There was a brief explanation about Part 2 at the top of the page, followed by the measure for expectations. It was logical to ask for an overall assessment of the web site, i.e. better or worse than expected, immediately following the browsing activity.

**2) Questionnaire layout**

Physical characteristics, such as a professional look, readability, proper separation of questions, adequate space for answers, can affect the accuracy of responses. Questionnaires were laid out into two parts. Part 1 was administered before the participants' interaction with the web sites; and it consisted of pre-test measures for two variables, two control variables and the demographic questions. Parts 2 of the questionnaires included all post-test measures, and they were administered after the web site browsing activity. Separating the questionnaires into two parts administered at different times effectively reduced the size of each part, which is an important consideration, as big questionnaires can lead to fatigue and boredom. Great care was given to include plenty of blank space in order to avoid a 'crowded' effect, and to

provide adequate space for answers. For questions with a high number of characteristics or statements to be evaluated, clear tables were created to separate each statement or characteristic with lines; and relevant numbers were placed on the scale points in order to explicitly emphasise the scale direction, i.e. from 'strongly disagree' to 'strongly agree'. Churchill (1995) recommends including the name of sponsoring organisation and the name of the project on the first page as it lends credibility to the study. At the top left corner of the first page, a colour logo of the Open University Business School was placed; and the first sentence of the questionnaire explained it as part of an academic research project on consumer-brand interactions conducted by the OU Business School.

**3) Questionnaire instructions**

Providing clear instructions before and during the completion of questionnaires is very important. First, both parts of the questionnaires had a brief section at the beginning, informing the participants of the nature of the study and the brand web site they would be browsing; and emphasising the voluntary participation and confidentiality. Second, differentiation between questions (in bold) and specific instructions (in italic) was made; and instructions were placed as close to questions as possible. Finally, two parts of the questionnaire were separated explicitly; and specific instructions at the end of Part 1 asked the respondents to stop and refer to task lists for further instructions about the web site browsing activity. At the end of the task list respondents were clearly instructed to go back to the questionnaires and fill in the second part. A copy of the questionnaire can be found in Appendix 2d.

### 5.4.3 Experiments

The conceptual framework and related propositions about the interaction between consumers and brands on the Internet were based on the exploratory interviews as well as literature. The details of this first part of the study can be found in Chapter 4. In the second phase of the study, laboratory experiments were carried out to test these propositions. As a causal relationship has been posited between the independent variable (i.e. interactivity) and several other dependent variables, (i.e. consumer attitudes and perceptions), the scientific method of testing these relationships would be by experimentation. Pedhazur and Scmelkin (1991, p.251) define an experiment as "*a study in which at least one variable is manipulated and units are randomly assigned to the different levels or categories of the manipulated variable(s)*".

Experimental designs are considered to be more powerful than non-experimental designs; i.e. exploratory or descriptive, in uncovering causal relationships among variables because they involve principles of control, randomisation and comparison (Spector 1993; Churchill 1995). Control refers to manipulation of the independent variables, and constancy in implementation and procedures, as well as controlling the extraneous variables by elimination, inclusion or statistically. Randomisation refers to the random assignment of subjects to different treatment groups in an experiment, in order to give each subject an equal probability of being assigned to one of the treatments under consideration. It is "*designed to eliminate bias by spreading variability due to extraneous variables equally across groups being studied*" (Pedhazur and Schmelkin 1991, p.222). Randomisation allows the researcher to equate groups on all variables and hence avoid the impossible task of systematically controlling for an infinite number of extraneous variables, such as personal characteristics of subjects in a

study that are not directly relevant to the variables in question. The basic notion of an experiment requires that at least two groups of subjects are treated exactly the same in all ways except for the experimental treatment. Any differences observed in the behaviour of these groups are then attributed to the difference in the specific treatment conditions. Hence, the experiment is the primary means to establish cause-effect relationships (Keppel and Saufley 1980). Furthermore, within the online consumer behaviour context, Simonson *et al.* (2001, p.269) emphasise the advantages of using experiments as a research method as follows: "*...with the advancement of new technologies and the rise of the Internet, consumer researchers are in a much better position today to conduct investigations that deal with marketplace phenomena while maintaining experimental control*".

### 5.4.3.1 Pilot study

The experimental set-up for this research employed a 'multiple-group pre-test post-test design', where three groups of subjects were randomly allocated to three different web site treatments, namely Vauxhall, Ford and Volkswagen web sites. A pilot study was conducted prior to the main experiments with six volunteers in order to determine the clarity of the questionnaires and item wording and instructions, and the optimal amount of time required for adequately browsing each brand web site.

After refining and finalising the pre-test and post-test questionnaires in December 2001, six post-graduate research students were recruited as volunteers for the pilot study. In January 2002, all six volunteers completed the pilot. These volunteers were randomly allocated to two brand web sites, Vauxhall and Volkswagen respectively. They were first asked to fill in the pre-test questionnaire, which collected some demographic data

as well as some measures on dependent variables, e.g. brand personality and involvement, and the control variables, e.g. attitude toward the brand and interest in cars. About a week later, the same volunteers were exposed to these car brand web sites, and were asked to interact with them for about half an hour. They then filled in the post-test questionnaire, which included the measures for all dependent variables used in the pre-test, as well as additional measures for web site specific variables.

The number of respondents was not high enough to allow any statistical analyses; but this pilot study served the purpose of testing the questionnaire design, wording, and completion times as well as the computer equipment and web sites. The pilot study also showed that conducting the experiments in two separate sessions was highly complex and required extra time and cost even with only six volunteers. Therefore it was decided to administer both pre-test and post-test questionnaires for the actual experiments on the same day in a single session, which also helps to increase internal validity of the study by lowering possible history and attrition effects. Based on the insights gained from the pilot study, the questionnaires, instructions and task sheets were reworded and fine-tuned, and the required browsing time was set at a minimum of half an hour.

The pilot test data was not included in the data used for hypothesis testing.

#### 5.4.3.2 Sampling and experimental set-up

It is a common and widely accepted practice to use convenience samples in experimental research, due to resource constraints. Several examples of Internet-specific experimental studies that used convenience samples, usually in the form of university students can be found in literature (Bruner II and Kumar 2000; Fink and Laupase 2000;

Griffith *et al.* 2001; Roy *et al.* 2001; Mandel and Johnson 2002; Menon and Kahn 2002; Lee and Tan 2003; Teo *et al.* 2003). Hence, in this study, experimental subjects were recruited from the convenience sample of the Open University staff and students based in the Milton Keynes campus. Almost all examples of experimental designs in the literature use convenience samples recruited from the researchers' own universities. Kardes (1996) points out that the use of college students is appropriate for basic research on causal mechanisms, and that prior research by Locke (1986) showed that research results obtained with college students in laboratory settings corresponded closely to results obtained with non-college students in field settings. Due to the distance-learning nature of the Open University, the undergraduate student population is not based on campus. Therefore the invitation to participate in this study was sent to postgraduate research students and academic and support staff based in the Milton Keynes campus. Hence, the sampling frame, consisting of the convenience sample of Open University staff and postgraduate students, included a more heterogeneous population than any other college student sampling population.

#### 5.4.3.3 Calculating sample size

Determining the required sample size is a rather complex statistical procedure; and although it is possible to calculate it accurately, most studies within behavioural sciences use conventions and rule of thumb rather than statistics to calculate it. Some studies even fail to mention a priori attempts to calculate sample size, but simply report the number of subjects they managed to recruit. Keppel (1980) suggests that the minimum number of subjects in an experiment is five subjects per condition, although the gain in sensitivity with ten or more subjects is considerable. Increasing the number of subjects per group increases the power of the experiment (Churchill 1995).

To determine sample size statistically, one needs to estimate the probability of a Type I error (alpha: $\alpha$), the effect size and the power of the experiment. Type I error represents the probability of rejecting a null hypothesis when in fact it is true. In social sciences, the conventional level of $\alpha$ is 0.05 (5%), meaning that there will be a 5% probability of erroneously rejecting a null hypothesis when it is true. Type II error (beta: $\beta$), on the other hand, is the probability of failing to reject a null hypothesis when it is in fact false. The power of a test is the probability of rejecting the null hypothesis when it is actually false. Because the probability of failing to reject a false null hypothesis is $\beta$, then power must equal 1-$\beta$. Conventionally, it is desired to achieve levels of power in excess of 0.70 (Boniface 1995). In social sciences, value for power is usually set at 0.80, which means there is a 20% chance of making a Type II error. According to Howell (2002), "*a value of power = 0.80 makes a Type II error four times as likely as a Type I error, which is probably a reasonable reflection of their relative importance*". The effect size (d) is the standardised difference between two means (Howell 2002). The effect size can be estimated based on prior research, or a set of conventions proposed by Cohen (1988). Cohen defined three levels of d: small (0.20), medium (0.50) and large (0.80), and argued that a medium effect would be obvious to an intelligent viewer, a small effect would be difficult to detect visually, and a large effect would be at the same distance above a medium effect as 'small' is below. For this study, a medium to large effect size is estimated based on a prior study about customer adoption of e-service (Ruyter *et al.* 2001).

Howell (2002) highly recommends a freeware computer program, G*Power (Faul and Erdfelder 1992) for accurate power estimates. The results from this program showed that a total sample of 159 subjects was required for a medium effect size, at $\alpha$=0.05 and power=0.80. For a large effect size, on the other hand, the required sample size

dropped to 66 for the same alpha and power levels. Most experimental studies dealing with Internet variables do not discuss a priori sample size calculations. These articles simply report the number of subjects recruited, with the exception of one about customer adoption of e-service (Ruyter *et al.* 2001). The authors stated that a sample size of approximately 25 per treatment group would suffice to achieve a power of 0.80 at a $\alpha$=0.05, as they expected relatively large effects for all treatments and as they anticipated dependent variables to be highly intercorrelated. Similarly for this study, the effect size is estimated to be medium to large, and for a power of 0.80 at a $\alpha$=0.05, somewhere between 22 to 53 subjects per treatment group would suffice.

#### 5.4.3.4 Subject recruitment

Invitation e-mails were sent out to about a total of 1000 staff and post-graduate students based in Milton Keynes to participate in this research. A copy of this e-mail can be found in Appendix 2c. As a result, 78 volunteers were recruited, which gives about a 7.8% response rate. This relatively low response rate is understandable as the volunteers were asked to give over an hour of their time in a specified computer laboratory for no financial return. It was purposefully decided not to monetarily compensate for volunteers' time in order to emulate a more realistic web site browsing activity where consumers interact with brand web sites entirely in a voluntary fashion, investing their time and money usually in the form of Internet connection charges.

All 78 volunteers were randomly allocated to three experimental treatment groups, i.e. three different car web sites. In this study, there were three experimental conditions, namely, high, medium and low levels of web site interactivity. Hence, all 78 volunteers were randomly allocated to three groups resulting in a sample size of twenty-six per

group. As explained before, a priori calculations for sample size required somewhere between 22 to 53 subjects per group, therefore, twenty-six per group was satisfactory.

### 5.4.3.5 Experimental set-up and procedures

An integral part of control through manipulation in an experiment is uniformity or constancy in its implementation, such as standardisation of instruments, equipment, instructions and procedures of administration (Pedhazur and Schmelkin 1991). In this study, all these aspects of manipulation were held constant by the use of standard questionnaires, equipment, instructions and environment. Experiments took place in several sessions in specially designated computer labs using the previously set up personal computers with Internet connection to browse pre-specified brand web sites. This set up made it possible to instruct the participants in the methodology of the experiment, and monitor their compliance to instructions. In order to ensure that the participants had the same web site interaction, it was important to control the external factors. So all the PCs used during the experiment were of exactly the same technical specification, had the same web browser, same size monitors, and had the same speed of access to the Internet.

Following the standard introduction and instructions, participants were first asked to complete Part 1 of the questionnaire, which included questions on pre-test measures for brand personality and involvement, and, the control variables of brand attitude and 'interest in cars' as well as demographic data. Participants were not allowed to look at the second part of the questionnaire at this stage, in order to avoid their sensitisation to post-test measures. Then, they were asked to browse the web site on their computer screens for at least half an hour, following the specific instructions given to them in the

form of a task sheet.

The use of task sheets allowed the standardisation of each individual's interaction with the web site, as well as ensuring that they covered the necessary interactive functions in order to complete relevant scales during the questionnaire stage. Task sheets also instructed all participants to find a car model they might consider buying and then customise it to their specifications and find out the total price for the car; and record all this information on their sheets. This particular task ensured a deeper level of commitment to the evaluation of the web site; made it more likely that respondents engaged in searching and navigating the site; and provided a more natural setting between the user and the web site. The use of task sheets is common in Internet related experimental research for the above-mentioned reasons and examples can be found in literature (Barnes and Vidgen 2001c; Roy *et al.* 2001; Ruyter *et al.* 2001; Thørbjornsen *et al.* 2002). An example of a task sheet can be found in Appendix 2e.

After they completed their interaction with the web site, participants were asked to complete Part 2 of the questionnaire in their own time. Part 2 included questions on post-test measures on brand personality, involvement, and brand attitude; as well as all web site specific variables, i.e. perceived control, expectations, perceived interactivity, perceived value and attitude towards the web site. The overall session for the experiments lasted between one to one and a half hours. All data was obtained fairly and lawfully with written consent from each participant and they were guaranteed confidentiality and anonymity. The resulting questionnaires were stored and treated in accordance to the 1998 Data Protection Act.

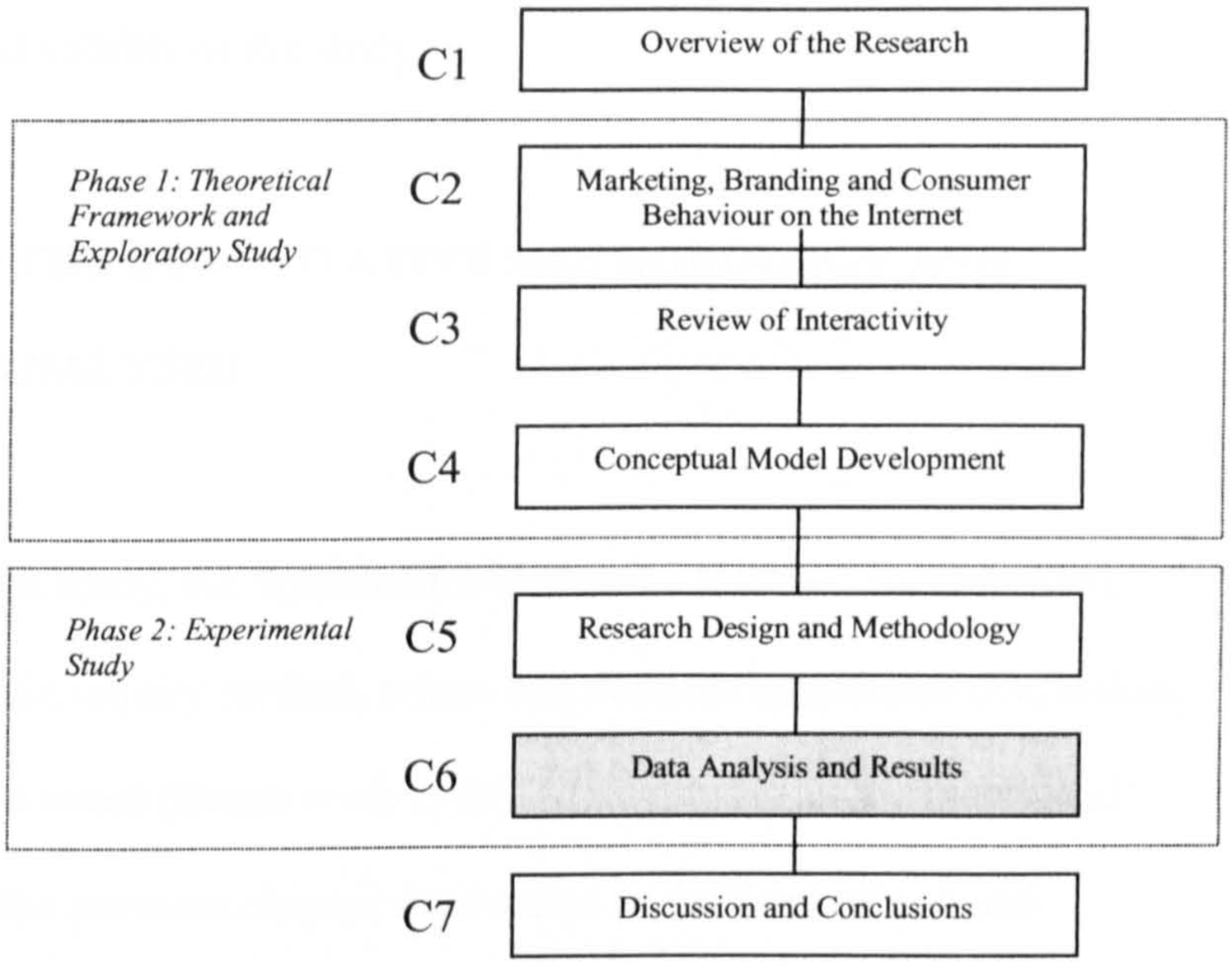
## 5.5 CHAPTER SUMMARY

The chapter opened with an introduction and a brief overview of methodology. Then operationalisation of constructs and scale selection for variables was discussed and justified in detail, which was subsequently summarised as the operational model and related hypotheses in Figure 5-1.

Next, the research design related to evaluating these hypotheses was explained. This section also explained how the variable of 'interactive features' as one of the indicators of the central construct of interactivity was operationalised in terms of a content analysis form; and why the automotive industry and three leading car brands were chosen as the context for the experiments.

Finally, the decisions regarding the choices on the experimental research methodology, and specifics of the experimental set-up and questionnaire design were discussed. The quantitative methodology and the statistical methods of analyses necessary to evaluate the research hypotheses, along with the empirical results and a discussion on reliability and validity will be presented in the next chapter.

# CHAPTER 6. DATA ANALYSIS AND RESULTS




## 6.1 INTRODUCTION

The operational model and hypotheses outlined in chapter 5 were empirically tested with three independent samples (78 subjects randomly allocated to three groups of 26 each) under three different experimental stimuli in the form of car brand web sites (Vauxhall, Ford and Volkswagen). This chapter presents these empirical results, as well as a detailed discussion of reliability and validity of the study.

First, section 6.2 gives an overview of the quantitative methodology and the statistical methods of analyses used for evaluating the research hypotheses. Section 6.3 gives the demographic and Internet experience and usage profiles of the research participants. Sections 6.4 outlines the exploratory data analysis results, including the discussion of normality of distributions, extreme scores, outliers and the effect of demographic and

control variables. Section 6.5 reports the results of hypothesis testing. A summary of these findings is presented in section 6.6. Further post-hoc analyses are performed and discussed within the context of the research model in section 6.7. Sections 6.8 and 6.9 discuss the reliability and validity of the study.

## 6.2 OVERVIEW OF THE QUANTITATIVE METHODOLOGY AND METHODS OF ANALYSES

In the second phase of this study, the 'hypothetico-deductive method' was followed, which is the main scientific inquiry method, where one deduces hypotheses (i.e, makes predictions) which can be tested (Evans *et al.* 1979). In this study, all the theoretical propositions outlined in the previous chapter were stated in the form of null and alternative hypotheses; and they were statistically tested using the relevant univariate or multivariate methods explained in the following sections.

The data collected via the group-administered questionnaires during the experiments was coded and analysed using the statistical computer package, SPSS for Windows version 11.5. The questionnaires included Likert-type and semantic differential scales, which were coded and treated as interval scales. Churchill (1995) points to the disagreement between those who insist that most marketing scales reflect ordinal levels of measurement, and those who argue that such scales can be treated as interval measures. Although the debate continues, and there is some evidence to support each argument, Churchill (1995) concludes that it is safe and productive to treat the total score summed over a number of items as an interval scale. The methods of analyses are explained below.

### 6.2.1 Paired samples t-test

The Paired-Samples t-test procedure compares the means of two variables for a single group (SPSS Inc. 2002). This test is used when the same participants perform under both conditions and hence the variables are related rather than independent (Dancey and Reidy 2002). Hypotheses 1a and 2a intend to test the effect of the web site interaction on consumers' evaluation of the brand personality and their involvement with the brand. As there were two measurements taken pre-test and post-test for these variables, paired-samples t-test was able to test whether the changes from pre-test to post-test scores were significant. A recent study investigating the impact of web site visit on brand image with a similar experimental design using two different web sites (Muller and Chandon 2004), also used pair-sampled t-tests for the same subjects' pre-test and post-test scores.

### 6.2.2 Analysis of Variance (ANOVA) / Covariance (ANCOVA)

As the quantitative part of this study aimed to test the differences between treatment groups representing different levels of web site interactivity, with three independent samples, the suitable statistical method was One-way ANOVA (Howell 2002). ANOVA seeks to determine the ratio of the within-group variability (arising due to individual differences) and between-group variability (arising because of the effectiveness of the independent variable with respect to the dependent variable) (Lewis-Beck 1993). Analysis of Covariance (ANCOVA) is an extension of ANOVA, where the effects of another variable (covariate) is partialled out. This provides statistical control to the study, in addition to controls provided by manipulation of the independent variable and randomisation. In this study, the variables, 'interest in cars' and 'attitude towards the

brand' were included as control variables; and were treated as covariates in the analysis, if appropriate. An effective covariate in ANCOVA is one that is highly correlated with the dependent variable but not correlated with the independent variables (Hair *et al.* 1995). The control variables in this study are totally unrelated to the independent variable of interactivity. Before applying ANCOVA, their correlation with the dependent variables in the model was checked.

### 6.2.3 Multivariate Analysis of Variance (MANOVA) / Covariance (MANCOVA)

Multivariate analysis of variance is the multivariate extension of the univariate techniques for assessing differences between group means, which gives the ability to examine several dependent measures simultaneously (Hair *et al.* 1995). In this study, the effect of interactivity on the dependent variables of brand personality, involvement, perceived control and expectations was tested. Separate ANOVAs measured the differences in the means of each dependent variable for different treatment groups. In other words, a series of individual *F* tests (ANOVAs) were run until all the dependent variables have been analysed. However, this approach has the disadvantages of an inflated Type I error rate, and it ignores the possibility that some composite of the dependent variables may provide reliable evidence of overall group differences (Hair *et al.* 1995). MANOVA provides a solution to these problems by providing a single overall test of group differences at a specified alpha level, and by testing the linear combinations of the dependent variables that provide the strongest evidence of overall group differences. Hence, in testing Hypothesis 7, MANOVA was used to see the differences among the treatment groups for the joint set of means for all the dependent variables. Similar to the analysis of variance / covariance, covariates can be used in the same manner in multivariate analysis, changing a MANOVA to a MANCOVA

(Weinfurt 1995). This technique was used in testing hypothesis 4, to determine the multivariate effect of treatment groups on the joint set of the four components of perceived value, after partialling out the effect of prior brand attitude.

In multivariate analyses, the SPSS output gives the results of four different multivariate tests (Wilks' lambda (λ), Pillai's trace, Hotelling's trace and Roy's largest root). It is generally accepted that the most appropriate test to report is Wilks' lambda (Tabachnick and Fidell 2000; Dancey and Reidy 2002); hence, in the results section, this value will be reported.

### 6.2.4 Regression and Correlation Analyses

Regression and correlation analyses refer to techniques for studying the relationship between two or more variables. Correlation analysis involves measuring the closeness of the linear relationship between two or more interval level variables; and regression analysis derives an equation that relates these variables. It is common to use both methods together (Churchill 1995). The most common index of correlation is the product-moment correlation coefficient, *r*, which equals 0 when two variables are uncorrelated, and –1 or +1 when they are perfectly correlated (Keppel and Saufley 1980). In this study, correlation and simple regression were used to assess the relationships between individual variables in the model. Multiple regression was used in testing hypothesis 8 to predict the dependent variable of perceived value from the set of independent variables of brand personality, involvement, perceived control and expectations.

## 6.3 PROFILE OF PARTICIPANTS

A total of seventy-eight subjects were recruited from the Walton Hall, Milton Keynes campus of the Open University. The sample consisted of 55 staff and 23 post-graduate students, of which 26 were males and 52 were females. The over-representation of females in the sample was expected, as around 64% of all staff at the OU in year 2002 were female (Kiceluk 2003).

Eighty-three percent of subjects were between 25 and 54 years of age, with the remainder of subjects being under 25 (12%) or over 55 (5%). These distributions are not too different from national statistics, where 65% of all adults who accessed the Internet were between 25 and 54 years of age, 18% were under 25, and 17% were over 55 years (Office for National Statistics 2002). Over sixty percent of subjects were educated to postgraduate level, which was an expected bias due to the nature of participants in the research.

In line with national statistics, approximately ninety percent of subjects held a driving license, and just over eighty percent were car owners. In the general population, the proportion of households with access to a car or van was 73% in year 2000; and car ownership is said to be higher amongst professional, employer and managerial households than in other socio-economic groups (Walker *et al.* 2001). The sample reflected this difference, as 80.8% of all participants owned a car.

Due to the high level IT literacy within the OU environment, research participants were highly experienced users of the Internet, with approximately ninety percent reporting four years or more of using the Internet. They also were frequent users of the Web, with

over seventy-five percent reporting to use it at least once and up to more than nine times a day. This is much higher than the national statistics where only twenty-four percent of all Internet users reported accessing the Internet at least once or more a day (Office for National Statistics 2002). Most of the subjects were heavy users of the Web, with about thirty-five percent reporting to use it ten hours or more per week. The descriptive information about all the research participants is summarised in Table 6-1.

**Table 6-1Profile of research participants**

| | | N | % |
|---|---|---|---|
| **Gender** | Male | 26 | 33.3% |
| | Female | 52 | 66.7% |
| **Age group** | 16-24 | 9 | 11.5% |
| | 25-34 | 20 | 25.6% |
| | 35-44 | 24 | 30.8% |
| | 45-54 | 21 | 26.9% |
| | 55-64 | 4 | 5.1% |
| **Education level** | GCSE Level | 6 | 7.7% |
| | A-Level | 2 | 2.6% |
| | Certificate/Diploma Level | 8 | 10.3% |
| | Undergraduate Level | 14 | 17.9% |
| | Postgraduate Level | 48 | 61.5% |
| **Status at the OU** | Staff | 55 | 70.5% |
| | Student | 23 | 29.5% |
| **Driving license** | Yes | 70 | 89.7% |
| | No | 8 | 10.3% |
| **Car owner** | Yes | 63 | 80.8% |
| | No | 15 | 19.2% |
| **Web experience** | less than 6 months | 1 | 1.3% |
| | 1 to 3 years | 7 | 9.0% |
| | 4 to 6 years | 39 | 50.0% |
| | 7 years or more | 31 | 39.7% |
| **Web usage frequency** | Once a month | 3 | 3.8% |
| | Once a week | 1 | 1.3% |
| | A few times a week | 15 | 19.2% |
| | 1 to 4 times/day | 29 | 37.2% |
| | 5 to 8 times/day | 7 | 9.0% |
| | More than 9 times/day | 23 | 29.5% |
| **Web usage hours** | 0 to 1 hour/week | 11 | 14.1% |
| | 2 to 4 hours/week | 19 | 24.4% |
| | 5 to 6 hours/week | 11 | 14.1% |
| | 7 to 9 hours/week | 10 | 12.8% |
| | 10 to 20 hours/week | 18 | 23.1% |
| | 21 to 40 hours/week | 7 | 9.0% |
| | Over 40 hours/week | 2 | 2.6% |

As explained in the previous chapter, all seventy-eight volunteers were randomly allocated to three treatment groups, i.e. three car brand web sites (Vauxhall, Ford and Volkswagen) with twenty-six subjects in each group. The descriptive information about the research participants in each sample is summarised in Table 6-2.

**Table 6-2 Profile of the Samples**

| | | Vauxhall | | Ford | | Volkswagen | |
|---|---|---|---|---|---|---|---|
| | | N | % | N | % | N | % |
| **Gender** | Male | 8 | 30.8% | 7 | 26.9% | 11 | 42.3% |
| | Female | 18 | 69.2% | 19 | 73.1% | 15 | 57.7% |
| Group Total | | 26 | 100.0% | 26 | 100.0% | 26 | 100.0% |
| **Age group** | 16-24 | 3 | 11.5% | 1 | 3.8% | 5 | 19.2% |
| | 25-34 | 7 | 26.9% | 9 | 34.6% | 4 | 15.4% |
| | 35-44 | 6 | 23.1% | 10 | 38.5% | 8 | 30.8% |
| | 45-54 | 10 | 38.5% | 5 | 19.2% | 6 | 23.1% |
| | 55-64 | 0 | .0% | 1 | 3.8% | 3 | 11.5% |
| Group Total | | 26 | 100.0% | 26 | 100.0% | 26 | 100.0% |
| **Education level** | GCSE Level | 2 | 7.7% | 3 | 11.5% | 1 | 3.8% |
| | A-Level | 0 | .0% | 1 | 3.8% | 1 | 3.8% |
| | Certificate/Diploma Level | 3 | 11.5% | 2 | 7.7% | 3 | 11.5% |
| | Undergraduate Level | 4 | 15.4% | 6 | 23.1% | 4 | 15.4% |
| | Postgraduate Level | 17 | 65.4% | 14 | 53.8% | 17 | 65.4% |
| Group Total | | 26 | 100.0% | 26 | 100.0% | 26 | 100.0% |
| **Status at the OU** | Staff | 14 | 53.8% | 22 | 84.6% | 19 | 73.1% |
| | Student | 12 | 46.2% | 4 | 15.4% | 7 | 26.9% |
| Group Total | | 26 | 100.0% | 26 | 100.0% | 26 | 100.0% |
| **Driving license** | Yes | 21 | 80.8% | 26 | 100.0% | 23 | 88.5% |
| | No | 5 | 19.2% | 0 | .0% | 3 | 11.5% |
| Group Total | | 26 | 100.0% | 26 | 100.0% | 26 | 100.0% |
| **Car owner** | Yes | 21 | 80.8% | 20 | 76.9% | 22 | 84.6% |
| | No | 5 | 19.2% | 6 | 23.1% | 4 | 15.4% |
| Group Total | | 26 | 100.0% | 26 | 100.0% | 26 | 100.0% |
| **Web experience** | less than 6 months | 1 | 3.8% | 0 | .0% | 0 | .0% |
| | 1 to 3 years | 3 | 11.5% | 2 | 7.7% | 2 | 7.7% |
| | 4 to 6 years | 14 | 53.8% | 11 | 42.3% | 14 | 53.8% |
| | 7 years or more | 8 | 30.8% | 13 | 50.0% | 10 | 38.5% |
| Group Total | | 26 | 100.0% | 26 | 100.0% | 26 | 100.0% |
| **Web usage frequency** | Once a month | 2 | 7.7% | 1 | 3.8% | 0 | .0% |
| | Once a week | 0 | .0% | 1 | 3.8% | 0 | .0% |
| | A few times a week | 7 | 26.9% | 3 | 11.5% | 5 | 19.2% |
| | 1 to 4 times/day | 11 | 42.3% | 9 | 34.6% | 9 | 34.6% |
| | 5 to 8 times/day | 1 | 3.8% | 3 | 11.5% | 3 | 11.5% |
| | More than 9 times/day | 5 | 19.2% | 9 | 34.6% | 9 | 34.6% |
| Group Total | | 26 | 100.0% | 26 | 100.0% | 26 | 100.0% |
| **Web usage hours** | 0 to 1 hour/week | 5 | 19.2% | 3 | 11.5% | 3 | 11.5% |
| | 2 to 4 hours/week | 11 | 42.3% | 5 | 19.2% | 3 | 11.5% |
| | 5 to 6 hours/week | 2 | 7.7% | 6 | 23.1% | 3 | 11.5% |
| | 7 to 9 hours/week | 2 | 7.7% | 2 | 7.7% | 6 | 23.1% |
| | 10 to 20 hours/week | 5 | 19.2% | 7 | 26.9% | 6 | 23.1% |
| | 21 to 40 hours/week | 1 | 3.8% | 2 | 7.7% | 4 | 15.4% |
| | Over 40 hours/week | 0 | .0% | 1 | 3.8% | 1 | 3.8% |
| Group Total | | 26 | 100.0% | 26 | 100.0% | 26 | 100.0% |

## 6.4 EXPLORATORY DATA ANALYSES

All data collected in the group-administered questionnaires during the experiments was coded and entered into SPSS for Windows version 11.5. The raw data entered into a statistical program is just a collection of numbers, which needs to be organised in a logical way. To plot data in some graphical form is one of the simplest methods to make them intelligible (Howell 2002). Hence, all variables were explored in graphical form as frequency distributions and histograms in addition to the measures of central tendency (mode, median and mean) and variability (i.e. standard deviation). Frequency distribution reports how often each measurement of a variable occurs, showing the tendency to cluster around certain values. A histogram groups adjacent values of a frequency distribution, reducing the random noise in the data that is not likely to be meaningful, but preserving important trends. Histograms also reveal whether data is normally distributed, which is an important prerequisite for parametric tests (Howell 2002). Further discussion on normality follows in section 6.4.2. A summary of the results of exploratory data analysis for all variables is presented in Appendix 3a. All variables were also standardised and all standard scores (z) were saved as new variables. A standard score expresses an individual's score in units that are given as standard deviations of the distribution of scores of the whole group (Ghiselli *et al.* 1981); and hence allows comparisons between different variables that do not necessarily have the same units of measurement. As there were three sub samples from three treatment groups, and differences were expected between these groups, it was appropriate to combine the raw scores and compute the standard scores on the total sample (Ghiselli *et al.* 1981).

### 6.4.1 Data Verification

All variables (demographic, control and dependent) were first coded into a SPSS data file, as nominal, ordinal or interval according to the measurement level of each variable. Then all data from each questionnaire was entered into this file, and proofread twice to make sure no coding or data entry errors had appeared in the raw data sets. All seventy-eight questionnaires were usable, and there were no missing values in seventy-seven of them. Only one participant from the Ford group experienced a random technical problem with browsing the web site during the experiment; and hence could not complete some of the questions. The missing values for this case were deleted listwise by default during data analysis within SPSS. The practice of listwise case deletion is suitable as long as the proportion of missing values is not too large (Hair *et al.* 1995). Hence, with only one case of missing values, listwise deletion was not considered troublesome. All scales used in the questionnaires, except for 'expectations', were multi-item measures. These individual subscales, or components, were summed to arrive at the composite variable as an indicator of the underlying construct (Ghiselli *et al.* 1981). As all the components of a composite variable were measured on a 7-point Likert-type scale, it was possible to express the composite scores as the summated ratings of the individual components rather than standardised scores (Ghiselli *et al.* 1981).

### 6.4.2 Examination of Normality

One of the first steps in exploratory data analysis is to examine the frequency distributions of all the variables, as parametric tests assume these distributions resemble a normal distribution. However, it is important to recognise that relatively large samples

of data are needed to see the real shape of a distribution. With sample sizes of around thirty, the best that can reasonably be expected is to see whether the data tends to pile up in the tails of the distribution or whether the data is markedly skewed in one direction or another (Howell 1989). In this study, there were 26 participants in each group. Normality checks were carried out for each group as well as the overall sample (Please refer to Appendix 3b for details). Kolmogorov-Smirnov and Shapiro-Wilk tests and histograms showed that most of the quantitative variables were normally distributed. For variables with deviations from normality or homogeneity of variances, the Box-Cox power transformation formula (Box and Cox 1964) was applied:

$$y_{t(}(\lambda) = y_i^{\lambda} - 1/\lambda \qquad (\lambda \neq 0)$$

$$y_t(0) = \log(y_i) \qquad (\lambda = 0)$$

where $y_{t(}$ represents transformed values; $y_I$ represents raw data; and $\lambda$ represents the recommended power of transformation, which was calculated by SPSS.

However, the resulting transformed scores were not improved greatly in terms of normality. Howell (2002) states that there is not much to be gained from transformations when the "*data are reasonably distributed (i.e. are more or less symmetrical and have few if any outliers) and if the variances are reasonably homogenous*" (p.349). As the data follows Howell's criteria, it was decided to keep the untransformed scores. This decision was also supported by the fact that ANOVA is generally robust against the violations of the assumption of normality and homogeneity of variances, especially for equal size independent samples (Kenny and Judd 1986).

### 6.4.3 Outliers

Box plots give a graphical representation of dispersions and reveal the presence of any outliers (extreme scores) in data, which need to be dealt with. An outlier could represent an error in measurement or in data entry, or it could be a legitimate extreme value; hence, it deserves special attention (Howell 1989). The outliers in data were scrutinised; and it was established that they were not procedural errors, and they represented legitimate extreme values in data. Box plots for all variables can be found in Appendix 3b. Tabachnick and Fidell (2001) suggest that standardised scores in excess of 3.29 are potential outliers. All the dependent variables in the model were also checked for this condition. The standard scores for cases previously shown as outliers by box plots were all below this value. Hence, all cases were retained for analysis to ensure generalisability to the entire population (Hair *et al.* 1995).

### 6.4.4 Demographic and Control Variables

In addition to demographic variables, such as gender, age, Internet usage, two control variables, 'interest in cars' and 'attitude toward the brand', were also included in the design, as respondents with extreme scores in these variables could be predisposed to have extreme scores in variables of interest. Hence, the effects of these control variables on other variables in the model were checked prior to hypothesis testing. As the demographic variables were expected to have no significant influence on the other variables in the study, non-parametric tests were conducted to verify they did not vary significantly across treatment groups. This verification also helped with the external validity of the study, in terms of being able to generalise the findings across different levels of the demographic variables; i.e. a certain finding from a hypothesis being valid

for both males and females; or across age groups. Please see Appendix 3c for the details of the checks on demographic and control variables.

#### 6.4.4.1 Demographic variables

As the demographic variables were measured at a nominal or ordinal level, Kruskal-Wallis tests were conducted to see whether differences among treatment groups existed. Kruskal-Wallis is the non-parametric equivalent of ANOVA that looks for a significant difference between the mean ranks of different conditions (Dancey and Reidy 2002). As expected, results showed the treatment groups did not differ significantly in terms of each demographic variable, except for web usage hours.

The difference in web usage hours among treatment groups was further scrutinised by conducting Mann-Whitney tests, which is the non-parametric equivalent of t-tests (Dancey and Reidy 2002). There were no significant differences between Vauxhall versus Ford and Ford versus Volkswagen. At an adjusted significance level of 1.67%, the Volkswagen to Vauxhall comparison showed a borderline significance (Mann-Whitney $U = 209$, $z = -2.407$, $p = 0.016$), where the Volkswagen group seemed to be comprised of individuals who used the Internet more than those of the Vauxhall group did. However, as this is a borderline result, and the error bar charts showed some overlap between the two groups' confidence levels, there is not enough evidence to conclude the groups differed on this variable. Please see Appendix 3c for details.

### 6.4.4.2 Interest in Cars

A one-way ANOVA revealed that the treatment groups did not differ significantly in terms of the interest in cars variable ($F = 2.593$, $df = 2$, $p = 0.082$), as shown in Appendix 3c. Hence, there was no need to control for this variable, and it was made redundant from further analysis.

### 6.4.4.3 Attitude towards the brand

Respondents' attitude towards the brand was measured twice, before and after their interaction with the web site. First, a paired samples t-test checked whether there were any significant differences between the pre-test and post-test measures of this variable. A strong correlation (Pearson's $r = 0.709$, $p<0.001$) justified the use of paired samples t-test. No significant difference was found between the pre-test and post-test measures ($t = -0.720$, $df = 76$, $p = 0.474$), meaning that the respondent's attitude towards the brand in question did not change significantly before and after interacting with the web site. This was an expected result, as attitudes towards brands are developed over long periods due to direct product/service experience, exposure to brand messages, advertising, editorials, and word-of-mouth. These overall attitudes are unlikely to change after a brief exposure such as the interaction with the web site.

One-way ANOVA results showed that there were significant differences between treatment groups in both pre-test and post-test measures of attitude towards the brand scores. Error bar charts showed that both the pre-test and post-test scores were significantly higher for the Volkswagen group, as opposed to Ford and Vauxhall groups. There were no differences between the Vauxhall and Ford groups. This means

that an existing predisposition to have a more favourable attitude towards the Volkswagen brand might create distorted results in the dependent variables in the model. Hence, this variable will be controlled for in univariate or multivariate analyses of covariance (ANCOVA / MANCOVA), where applicable. Please see Appendix 3c for the details of the statistical analyses.

## 6.5 RESULTS OF HYPOTHESIS TESTING

This section presents the results of each hypothesis testing with appropriate statistical techniques, along with the relevant SPSS output, graphs and tables. For hypotheses that looked at differences among treatment groups by analysis of variance, further post-hoc tests were applied to determine which means differed. These multiple comparisons between group means were done by adjusting the observed significance level for the number of comparisons being made, since each comparison provides another opportunity to reject the null hypothesis (Dancey and Reidy 2002). Therefore, multiple comparison tests available within SPSS automatically adjust the significance levels. The two most commonly used tests are Bonferroni and Tukey's HDS (honestly significant difference). Bonferroni is more powerful than Tukey's HSD for a small number of pairs (SPSS Inc. 2002). In this study Bonferroni procedure was chosen as there are three treatment groups, and hence, three possible comparison pairs.

**H1a The effect of web site interaction on the excitement dimension of brand personality.**

$H_0$: The mean scores for the excitement dimension of brand personality measured after the subjects' web site interaction will be less than or equal to the mean scores measured before the interaction.

$H_1$: The mean scores for the excitement dimension of brand personality measured after the subjects' web site interaction will be higher than the mean scores measured before the interaction.

Question 5 in Part 1 of the questionnaire asked the respondents to rate the excitement dimension of the brand's personality on a 7-point Likert scale ranging from 'not at all descriptive' to 'extremely descriptive', before they were exposed to that brand's web site. Question 7 in Part 2, presented the same scale after the respondents interacted with the brand web site as the experimental stimuli. This hypothesis looks at the difference between pre-test and post-test measures of the same construct.

As there were two related measures to compare, paired samples t-test was used to test the significance of the differences between the pre-test and post-test measures of the excitement dimension of brand personality. The results of the paired samples test are given in Table 6-3.

**Table 6-3 Paired Samples t-test for pre-test / post-test measures of the excitement dimension of brand personality.**

Descriptive Statistics

| Measures | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| Pre-test Total Brand Personality Score | 35.62 | 77 | 11.733 | 1.337 |
| Post-test Total Brand Personality Score | 41.17 | 77 | 14.704 | 1.676 |

Paired Samples Correlations

| Measures | N | Correlation | Sig. |
|---|---|---|---|
| Pre-test Total Brand Personality Score & Post-test Total Brand Personality Score | 77 | .512 | .000 |

Paired Samples Test

| | Paired Differences | | | | | t | df | Sig. |
|---|---|---|---|---|---|---|---|---|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Intervals | | | | |
| | | | | Lower | Upper | | | |
| Pre-test Total Brand Personality Score - Post-test Total Brand Personality Score | -5.55 | 13.307 | 1.516 | -8.57 | -2.53 | -3.657 | 76 | .000 |

As expected from related samples, the correlation between the two variables is high (0.512, $p<0.001$), which justifies the use of paired samples t-test. Results showed that the respondents rated the excitement dimension of brand personality for an overall mean of 35.62 before they interacted with the web site, as opposed to the overall mean of 41.17 after they interacted with the web site. This represents an overall mean increase of 5.55 from pre-test to post-test measures of the excitement dimension of brand personality, which is a medium effect size ($d = 0.42$). The 95% confidence levels show that the population mean difference between the conditions would lie somewhere between –8.57 and –2.53, if the experiment is repeated. The results are significant ($t = –3.657$, $df = 76$, $p<0.001$); hence, the null hypothesis is rejected. The alternative hypothesis, which stated that brands would be perceived as more exciting online than offline is supported.

As there were two separate measurements for this variable before and after web site interaction, repeated-measures MANOVA was used to verify the results obtained from paired samples t-test. Assumptions of normality, homogeneity of variance and sphericity were met.

**Table 6-4 Repeated measures MANOVA for pre-test / post-test scores of the excitement dimension of brand personality.**

Multivariate Tests

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|---|
| EXCITE | Wilks' Lambda | .850 | 13.373 | 1.000 | 76.000 | .000 | .150 | .951 |

a Computed using alpha = .05

Tests of Within-Subjects Effects

| Source | | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|---|
| EXCITE | Sphericity Assumed | 1183.955 | 1 | 1183.955 | 13.373 | .000 | .150 | .951 |
| Error (EXCITE) | Sphericity Assumed | 6728.545 | 76 | 88.533 | | | | |

a Computed using alpha = .05

Multivariate tests showed that web site interaction had a significant effect on the combined factor for the pre-test and post-test scores ($F(1, 76) = 13.373$, $p<0.001$; Wilks' $\lambda = 0.85$). An overall effect size of 0.15 ($Eta^2$) showed that 15% of the variation in scores could be accounted for by the effect of subjects' web site interaction. The associated power was very high (0.95).

| | |
|---|---|
| **H1b** | **The effect of the interactivity of web sites on the excitement dimension of brand personality.**<br><br>$H_0$: There will be no differences between the pre-test / post-test difference scores of the excitement dimension of brand personality among the treatment groups.<br><br>$H_1$: There will be significant differences between the pre-test / post-test difference scores of the excitement dimension of brand personality among the treatment groups. |

This hypothesis looks at the effect of the interactivity of web sites on the difference scores between pre-test and post-test measures of the excitement dimension of brand personality. As there were two separate indicators for the construct of interactivity, this hypothesis was tested two-folds. First, a one-way analysis of variance[20] was used to test the significance of differences among treatment groups, as they represented categorical levels of interactivity (Vauxhall=high, Ford=medium, Volkswagen=low). Descriptive statistics (Table 6-5) show that the post-test mean scores for the excitement dimension of brand personality were higher than the pre-test mean scores for all three groups. However, this difference in scores was much higher (mean difference of 11.36 as opposed to 4.35 and 1.15) for the Ford group than in the other two conditions.

Furthermore, the confidence interval for the Ford group does not overlap with the other two groups, meaning the difference is unlikely to be due to sampling error. A one-way analysis of variance also showed that the differences between groups were unlikely to have arisen by sampling error, assuming the null hypothesis to be true ($F = 4.24$, $df = 2$,

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[20] As there was no significant correlation between existing brand attitude and this variable, ANCOVA with attitude toward the brand as covariate was not necessary.

p = 0.018). Hence, the null hypothesis is rejected. A post-hoc test confirmed that the difference between Ford and Volkswagen groups (effect size (d) = 0.75) was unlikely to have arisen by sampling error. There were no significant differences between Ford and Vauxhall (effect size (d) = 0.57) or Vauxhall and Volkswagen (effect size (d) = 0.26).

**Table 6-5 One-way ANOVA for the difference between post-test and pre-test personality scores**

Descriptives

Difference between post and pretest personality scores

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Vauxhall | 26 | 4.3462 | 10.78496 | 2.11510 | -.0100 | 8.7023 |
| Ford | 25 | 11.3600 | 13.66833 | 2.73367 | 5.7180 | 17.0020 |
| Volkswagen | 26 | 1.1538 | 13.68413 | 2.68368 | -4.3733 | 6.6810 |
| Total | 77 | 5.5455 | 13.30665 | 1.51643 | 2.5252 | 8.5657 |

ANOVA

Difference between post and pretest personality scores

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 1384.062 | 2 | 692.031 | 4.242 | .018 |
| Within Groups | 12073.029 | 74 | 163.149 | | |
| Total | 13457.091 | 76 | | | |

Although support was found for the alternative hypothesis, the differences between treatment groups were not in the expected direction. The Vauxhall web site was supposed to represent the highest category of 'interactive features'; hence, the biggest difference in excitement scores was expected for this group. However, the biggest difference was observed for the Ford group, followed by Vauxhall and then Volkswagen.

The second indicator of interactivity in this study was 'perceived interactivity', which was measured on a 7-point Likert-type scale with ten items from the consumers'

perspective. To test the same hypothesis using perceived interactivity as the indicator, it was necessary to run correlation and linear regression analyses between perceived interactivity and the difference in post-test & pre-test measures of the excitement dimension of brand personality. The SPSS output for the second part of this hypothesis is given in Table 6-6 below.

**Table 6-6 Correlation and Regression Analyses for the relationship between perceived interactivity and the difference between post-test and pre-test scores of the excitement dimension of brand personality.**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Difference between post and pretest personality scores | 5.5455 | 13.30665 | 77 |
| Total Perceived Interactivity Score | 44.71 | 10.424 | 77 |

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .405(a) | .164 | .153 | 12.24471 |

a Predictors: (Constant), Total Perceived Interactivity Score

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 2212.123 | 1 | 2212.123 | 14.754 | .000(a) |
| | Residual | 11244.968 | 75 | 149.933 | | |
| | Total | 13457.091 | 76 | | | |

a Predictors: (Constant), Total Perceived Interactivity Score
b Dependent Variable: Difference between post and pretest personality scores

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | -17.598 | 6.185 | | -2.845 | .006 | -29.918 | -5.277 |
| | Total Perceived Interactivity Score | .518 | .135 | .405 | 3.841 | .000 | .249 | .786 |

a Dependent Variable: Difference between post and pretest personality scores

There is a moderately strong correlation between these variables (Pearson's r = 0.41, $p<0.001$). 16% ($r^2 = 0.16$) of the variation in the difference between post-test and pre-test scores on this variable can be explained by the variation in perceived interactivity. Confidence limits were narrow, showing that we are 95% confident that the population slope would lie between 0.25 and 0.79. The F-value (14.754, df = 1, 75) had an associated probability level of $p<0.001$, showing that the results were unlikely to have arisen by sampling error, assuming the null hypothesis to be true. Hence, the null hypothesis is rejected. The regression equation below can be used to predict the difference scores in the excitement dimension of brand personality, when perceived interactivity scores for that web site are known:

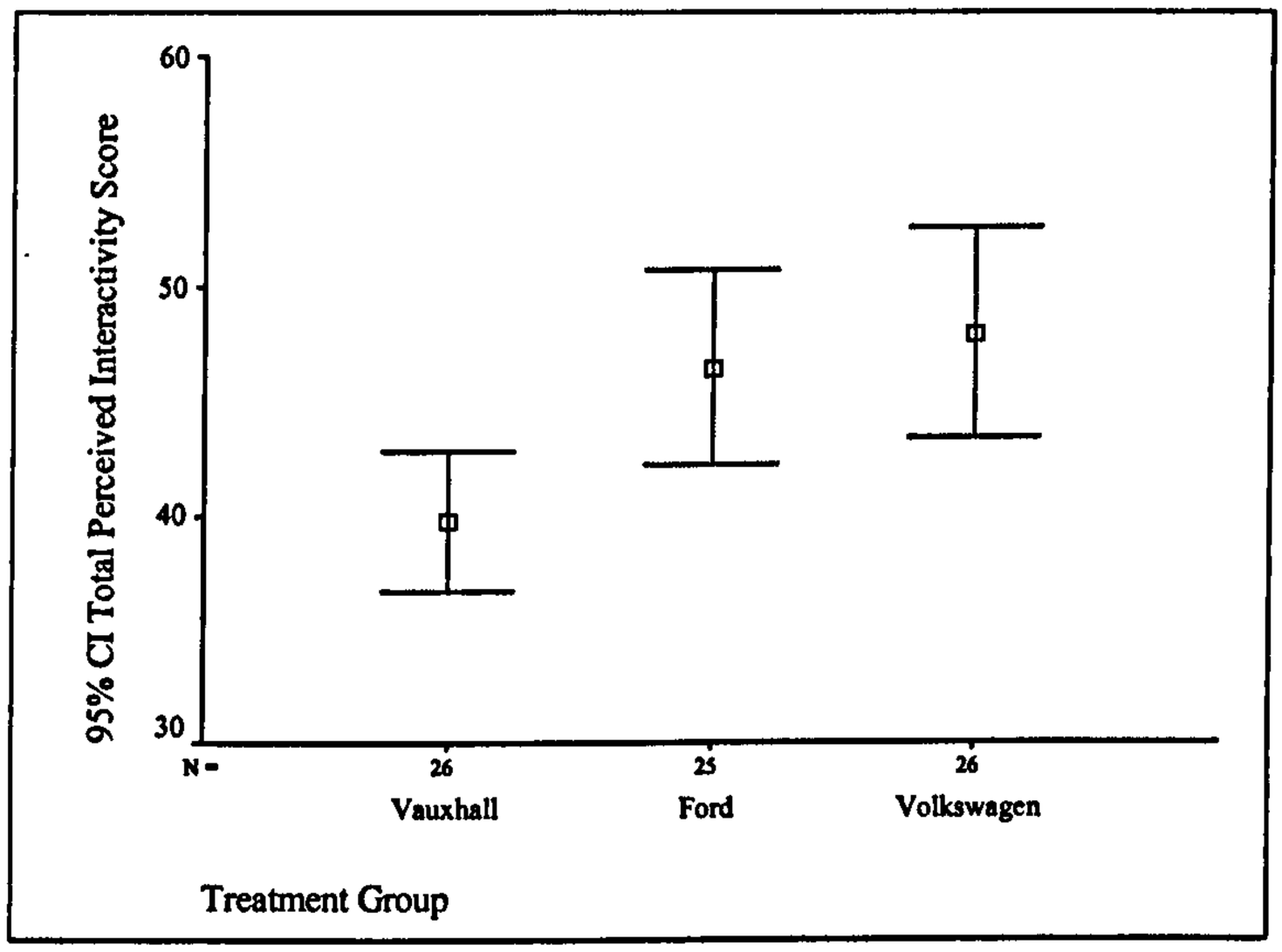
$\hat{y}$ (predicted difference in post-test & pre-test scores of the excitement dimension of brand personality) = (0.518 * perceived interactivity) – 17.598

As the two indicators of interactivity do not converge, a two-fold analysis was justified. The differences found between treatment groups in the first part of analysis were not in the expected direction, which signalled the fact that 'interactive features' as an indicator of interactivity did not support this hypothesis. However, using 'perceived interactivity' as the second indicator of the interactivity construct, a significant positive relationship and a regression equation to predict the difference scores in the excitement dimension of brand personality were established.

As was shown in previous chapters, 'perceived interactivity' and 'structural interactivity' (i.e. interactive features) are separate but related constructs. Hence, it was hypothesised that there would be a positive correlation between them. However, the

actual findings from this study show that there was a discrepancy between these two indicators of interactivity, which warrants a closer inspection. The error bar chart below shows that Ford and Volkswagen web sites were perceived as being more interactive than the Vauxhall web site, which demonstrates that the two separate indicators of interactivity do not converge.

**Figure 6-1 Confidence Intervals for Perceived Interactivity**




As there was a significant correlation between perceived interactivity and the control variable of 'attitude towards the brand', a one-way analysis of covariance was run to determine the differences in perceived interactivity among treatment groups, after partialling out the effects of prior brand attitudes. Descriptive statistics, observed and adjusted means and the results of the ANCOVA are presented in Table 6-7 below.

**Table 6-7 A one-way ANCOVA for the effect of treatment group on perceived interactivity controlling for prior brand attitude.**

Descriptive Statistics - Dependent Variable: Total Perceived Interactivity Score

| Treatment Group | Mean | Std. Deviation | N |
|---|---|---|---|
| Vauxhall | 39.77 | 7.602 | 26 |
| Ford | 46.48 | 10.445 | 25 |
| Volkswagen | 47.96 | 11.326 | 26 |
| Total | 44.71 | 10.424 | 77 |

Tests of Between-Subjects Effects - Dependent Variable: Total Perceived Interactivity Score

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta$^2$ | Observed Power(a) |
|---|---|---|---|---|---|---|---|
| Corrected Model | 1388.195(b) | 3 | 462.732 | 4.917 | .004 | .168 | .896 |
| Intercept | 7914.679 | 1 | 7914.679 | 84.107 | .000 | .535 | 1.000 |
| PRE_ATTI (prior brand attitude) | 400.298 | 1 | 400.298 | 4.254 | .043 | .055 | .530 |
| TREAT | 812.480 | 2 | 406.240 | 4.317 | .017 | .106 | .734 |
| Error | 6869.519 | 73 | 94.103 | | | | |
| Total | 162209.000 | 77 | | | | | |
| Corrected Total | 8257.714 | 76 | | | | | |

a Computed using alpha = .05
b R Squared = .168 (Adjusted R Squared = .134)

Adjusted means - Dependent Variable: Total Perceived Interactivity Score

| Treatment Group | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower Bound | Upper Bound |
| Vauxhall | 40.159(a) | 1.912 | 36.349 | 43.969 |
| Ford | 47.332(a) | 1.984 | 43.379 | 51.286 |
| Volkswagen | 46.752(a) | 1.991 | 42.785 | 50.720 |

a Covariates appearing in the model are evaluated at the following values: Pre-test Total Brand Attitude = 14.56.

Pairwise Comparisons - Dependent Variable: Total Perceived Interactivity Score

| (I) Treatment Group | (J) Treatment Group | Mean Difference (I-J) | Std. Error | Sig.(a) | 95% Confidence Interval for Difference(a) | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Vauxhall | Ford | -7.174(*) | 2.727 | .031 | -13.855 | -.493 |
| | Volkswagen | -6.593 | 2.800 | .064 | -13.454 | .267 |
| Ford | Vauxhall | 7.174(*) | 2.727 | .031 | .493 | 13.855 |
| | Volkswagen | .580 | 2.895 | 1.000 | -6.514 | 7.675 |
| Volkswagen | Vauxhall | 6.593 | 2.800 | .064 | -.267 | 13.454 |
| | Ford | -.580 | 2.895 | 1.000 | -7.675 | 6.514 |

Based on estimated marginal means
* The mean difference is significant at the .05 level.
a Adjustment for multiple comparisons: Bonferroni.

The perceived interactivity scores were different for all three groups; and Ford and Volkswagen web sites were perceived as more interactive than the Vauxhall web site. Although the mean perceived interactivity of the Volkswagen web site was higher than that of the Ford web site, the difference was slight, and, in fact, confidence limits around the means show that the intervals in which the population means for these two web sites are likely to overlap substantially. It was found that prior brand attitude was

positively associated with perceived interactivity (r = 0.264). A one-way analysis of covariance, using prior brand attitude as the covariate, showed that there was a significant difference between conditions (F = 4.317, df = 2, p = 0.017). Post-hoc tests confirmed that Ford web site was perceived to be the most interactive; and the difference between Ford and Vauxhall (effect size (d) = 0.74) was unlikely to have arisen by sampling error. There were no significant differences between Volkswagen versus Ford or Vauxhall web sites. The effect size of the difference between Ford and Vauxhall web sites is quite large (0.74) and, related to this, the power of the experiment is very large (0.90). This shows the theoretical significance of the experiment (Cohen 1988; Dancey and Reidy 2002), in addition to the statistical significance, in terms of establishing a powerful differentiation in web site perceived interactivity.

However, this finding also shows that the two indicators of interactivity do not converge. The web site with the highest number of interactive features (Vauxhall), in fact, was perceived to be the least interactive by subjects. The web site with the lowest number of interactive features (Volkswagen) was perceived to be the most interactive, before controlling for the effects of prior brand attitudes, which was significantly higher for Volkswagen as opposed to Vauxhall or Ford. Once the effects of the prior brand attitudes were partialled out, the Ford web site had the highest perceived interactivity scores. This finding now explains the results of the one-way ANOVA earlier, where the increases in the excitement dimension of brand personality scores before and after the web site interaction were highest for the Ford group. Given the discrepancy between the two indicators of interactivity, all the other hypotheses looking at group differences were also tested twofold, first with the treatment groups as the independent variable in analyses of variance; and then with 'perceived interactivity' as the independent variable in regression analyses.

**H1c The effect of the excitement dimension of brand personality on Perceived Value.**

$H_0$: There will be a zero or negative correlation between the excitement dimension of brand personality mean scores and the perceived value mean scores.

$H_1$: There will be a significant positive correlation between the excitement dimension of brand personality mean scores and the perceived value mean scores.

This hypothesis looks at the relationship between the excitement dimension of brand personality after the web site interaction and the total perceived value of that web site. Correlation and linear regression analyses were carried out to determine the effect of the excitement dimension of brand personality on total perceived value. The SPSS output for this hypothesis is given in Table 6-8 below.

**Table 6-8 Correlation and Regression Analyses for the relationship between the excitement dimension of brand personality and perceived value of the web site.**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Post-test Total Brand Personality Score | 41.17 | 14.704 | 77 |
| Total Perceived Value Score | 113.86 | 28.254 | 77 |

Model Summary(b)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .749(a) | .561 | .556 | 18.835 |

a Predictors: (Constant), Post-test Total Brand Personality Score
b Dependent Variable: Total Perceived Value Score

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 34063.711 | 1 | 34063.711 | 96.016 | .000(a) |
| | Residual | 26607.717 | 75 | 354.770 | | |
| | Total | 60671.429 | 76 | | | |

a Predictors: (Constant), Post-test Total Brand Personality Score
b Dependent Variable: Total Perceived Value Score

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% CI's for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 54.580 | 6.419 | | 8.503 | .000 | 41.793 | 67.367 |
| | Post-test Total Brand Personality Score | 1.440 | .147 | .749 | 9.799 | .000 | 1.147 | 1.733 |

a Dependent Variable: Total Perceived Value Score

There was a strong correlation between the variables (Pearson's r = 0.75, p<0.001). 56% ($r^2$ = 0.56) of the variation in perceived value can be explained by the variation in excitement dimension of brand personality. Confidence limits were narrow, showing that we are 95% confident that the population slope would lie between 1.15 and 1.73. The F-value (96.02, df = 1, 75) had an associated probability level of p<0.001, showing that the results were unlikely to have arisen by sampling error, assuming the null hypothesis to be true. Hence, the null hypothesis is rejected. The alternative hypothesis, which stated that the perceived value of a web site would increase as the perceived excitement of brand personality increases, is supported. The regression equation below can be used to predict the perceived value of a web site, when the excitement dimension of brand personality scores for that brand is known:

$\hat{y}$ (predicted perceived value) = (1.44 * excitement dimension of brand personality) + 54.58

**H2a The effect of web site interaction on involvement with the brand.**

$H_0$: The mean scores for the involvement with the brand measured after the subjects' web site interaction will be less than or equal to the mean scores measured before the interaction.

$H_1$: The mean scores for the involvement with the brand measured after the subjects' web site interaction will be higher than the mean scores measured before the interaction.

Similar to hypothesis 1a, this hypothesis looks at the effect of subjects' web site interaction on their involvement with the brand. Hence, a paired samples t-test for the pre-test and post-test measures of the involvement construct is appropriate. The results of the test are given in Table 6-9.

**Table 6-9 Paired Samples t-test for pre-test and post-test measures of involvement.**

Descriptive Statistics

| | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| Pre-test Total Involvement Score | 35.13 | 77 | 11.452 | 1.305 |
| Post-test Total Involvement Score | 40.58 | 77 | 11.898 | 1.356 |

Paired Samples Correlations

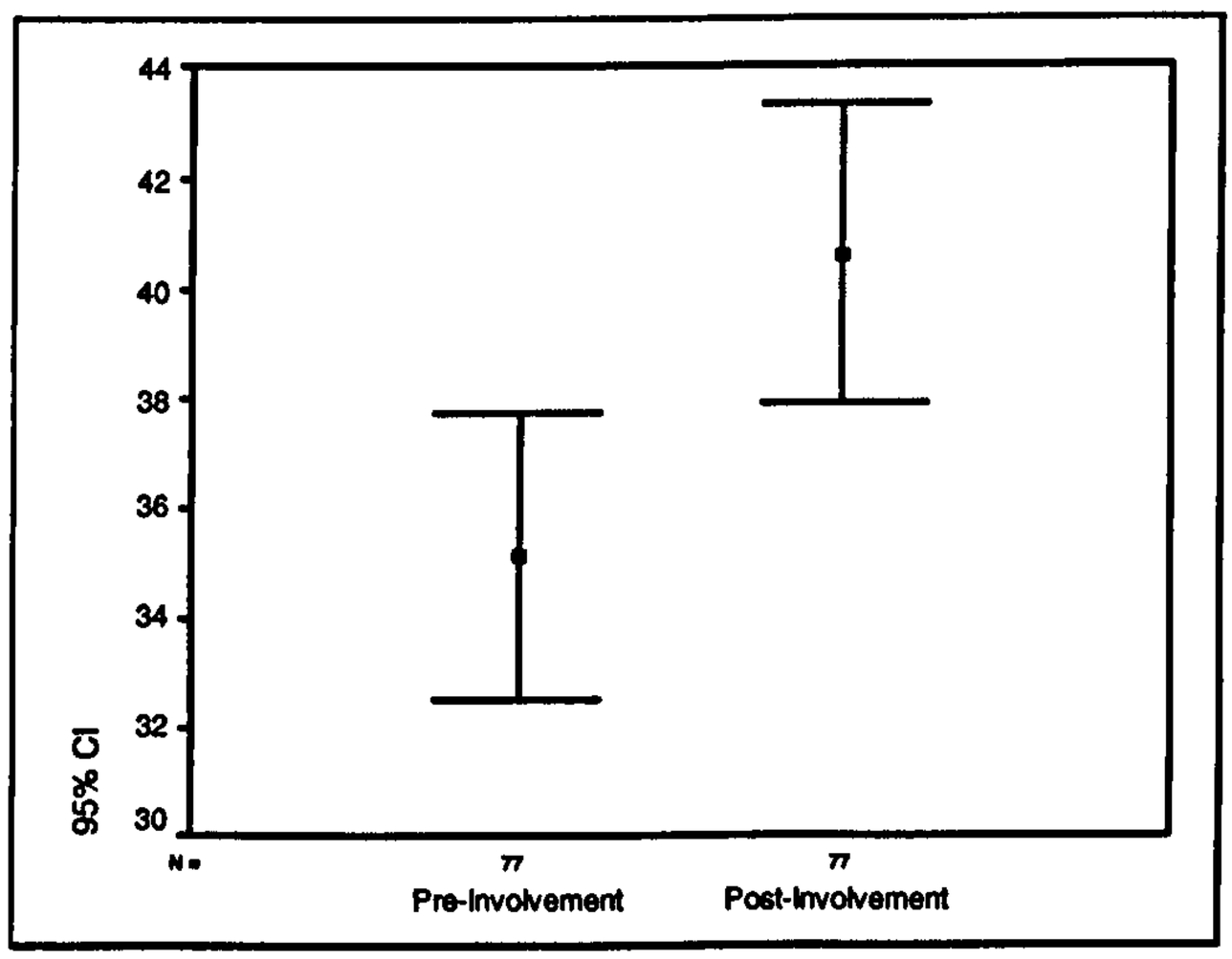
| | N | Correlation | Sig. |
|---|---|---|---|
| Pre-test Total Involvement Score & Post-test Total Involvement Score | 77 | .449 | .000 |

Paired Samples Test

| | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | Lower | Upper | | | |
| Pre-test Total Involvement Score - Post-test Total Involvement Score | -5.45 | 12.261 | 1.397 | -8.24 | -2.67 | -3.904 | 76 | .000 |

As expected from related samples, the correlation between the two variables was high (0.449, $p<0.001$), which justifies the use of paired samples t-test. As seen from the table above, the respondents rated the their involvement with the brand for a mean of 35.13 before they interacted with the web site, as opposed to the mean of 40.58 after they interacted with the web site. This represents a mean increase of 5.45 from pre-test to post-test measures of the involvement construct, with a medium effect size (d=0.44). The 95% confidence levels show that the population mean difference between the conditions would lie somewhere between –8.24 and –2.67. The results are significant ($t = -3.904$, $df = 76$, $p<0.001$); hence, the null hypothesis is rejected. Figure 6-3 below also supports the rejection of the null hypothesis, as there is a clear visual difference between the confidence intervals for the pre-test and post-test measures with no overlap.

**Figure 6-2 Confidence intervals for involvement**




As there were two separate measurements for this variable before and after web site interaction, repeated-measures MANOVA was used to verify the results from paired samples t-test. Assumptions of normality, homogeneity of variance and sphericity were met. The results are presented in Table 6-10.

**Table 6-10 Repeated measures MANOVA for pre-test and post-test scores of involvement**

Multivariate Tests

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|---|
| INVOLVE | Wilks' Lambda | .833 | 15.239 | 1.000 | 76.000 | .000 | .167 | .971 |

a Computed using alpha = .05

Tests of Within-Subjects Effects

| Source | | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|---|
| INVOLVE | Sphericity Assumed | 1145.455 | 1 | 1145.455 | 15.239 | .000 | .167 | .971 |
| Error(INVOLVE) | Sphericity Assumed | 5712.545 | 76 | 75.165 | | | | |

a Computed using alpha = .05

Multivariate tests showed that web site interaction had a significant effect on the combined factor for the pre-test and post-test scores of involvement ($F(1, 76) = 15.239$, $p<0.001$; Wilks' $\lambda = 0.83$). An overall effect size of 0.17 ($Eta^2$) showed that 17% of the variation in scores could be accounted for by the effect of the online medium. The associated power was very high (0.97).

**H2b The effect of the interactivity of web sites on involvement with the brand.**

$H_0$: There will be no differences between the pre-test / post-test difference scores of involvement mean scores among the experimental treatment groups.

$H_1$: There will be significant differences between the pre-test / post-test difference scores of involvement mean scores among the experimental treatment groups.

Similar to hypothesis 1b, this hypothesis was also tested two-folds. First, a one-way ANCOVA with attitude towards the brand as the covariate was conducted.[21] Descriptive statistics (Table 6-11) show that the post-test scores for brand involvement were higher than pre-test scores for all three groups. Consistent with the finding from hypothesis 1b, the difference in scores was highest (mean difference of 9.4 as opposed to 4.23 and 2.88) for the Ford group. The observed and adjusted means are also shown in this table. A one-way analysis of covariance, partialling out the effects of the prior brand attitude, showed that the differences between groups were not significant ($F=1.799$, $df=2$, $p=0.173$). Hence, the null hypothesis cannot be rejected.

**Table 6-11 A one-way ANCOVA for the difference between pre-test and post-test involvement scores controlling for prior brand attitude.**

Descriptive Statistics

Dependent Variable: Difference between post and pretest involvement scores

| Treatment Group | Mean | Std. Deviation | N |
|---|---|---|---|
| Vauxhall | 2.8846 | 13.86889 | 26 |
| Ford | 9.4000 | 9.89107 | 25 |
| Volkswagen | 4.2308 | 12.11382 | 26 |
| Total | 5.4545 | 12.26092 | 77 |

[21] There was a significant correlation ($r = 0.394$, $p<0.001$) between the existing brand attitude and this variable. Hence, ANCOVA was appropriate.

Tests of Between-Subjects Effects
Dependent Variable: Difference between post and pretest involvement scores

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|
| Corrected Model | 2223.815(b) | 3 | 741.272 | 5.881 | .001 | .195 | .944 |
| Intercept | 2709.371 | 1 | 2709.371 | 21.495 | .000 | .227 | .996 |
| PRE_ATTI (prior brand attitude) | 1623.993 | 1 | 1623.993 | 12.884 | .001 | .150 | .943 |
| TREAT | 453.624 | 2 | 226.812 | 1.799 | .173 | .047 | .365 |
| Error | 9201.276 | 73 | 126.045 | | | | |
| Total | 13716.000 | 77 | | | | | |
| Corrected Total | 11425.091 | 76 | | | | | |

a Computed using alpha = .05
b R Squared = .195 (Adjusted R Squared = .162)

To test the same hypothesis using perceived interactivity as the indicator, it was necessary to run correlation and linear regression analyses between perceived interactivity and the difference in post-test & pre-test measures of involvement scores. There was a moderately strong correlation between these variables (Pearson's r = 0.34, p = 0.001). 12% ($r^2 = 0.12$) of the variation in the difference between pre-test and post-test scores on this variable can be explained by the variation in perceived interactivity. Confidence limits were narrow, showing that we are 95% confident that the population slope would lie between 0.15 and 0.66. The F-value (9.942, df = 1, 75) had an associated probability level of p=0.002, showing that the results were unlikely to have arisen by sampling error, assuming the null hypothesis to be true. Hence, the null hypothesis is rejected. The regression equation below can be used to predict the difference scores in involvement, when perceived interactivity scores for that web site are known:

$\hat{y}$ (predicted difference in pre-test & post-test scores of involvement) = (0.402 * perceived interactivity) – 12.539

The SPSS output for this hypothesis is given in Table 6-12 below.

**Table 6-12 Correlation and Regression Analyses for the relationship between perceived interactivity and the difference between post-test and pre-test scores of involvement.**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Difference between post and pretest involvement scores | 5.4545 | 12.26092 | 77 |
| Total Perceived Interactivity Score | 44.71 | 10.424 | 77 |

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .342(a) | .117 | .105 | 11.59763 |

a Predictors: (Constant), Total Perceived Interactivity Score

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 1337.214 | 1 | 1337.214 | 9.942 | .002(a) |
| | Residual | 10087.877 | 75 | 134.505 | | |
| | Total | 11425.091 | 76 | | | |

a Predictors: (Constant), Total Perceived Interactivity Score

b Dependent Variable: Difference between post and pretest involvement scores

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | -12.539 | 5.858 | | -2.141 | .036 | -24.208 | -.870 |
| | Total Perceived Interactivity Score | .402 | .128 | .342 | 3.153 | .002 | .148 | .657 |

a Dependent Variable: Difference between post and pretest involvement scores

No significant differences were found between treatment groups in the first part of analysis, which signalled the fact that 'interactive features' as an indicator of interactivity did not support this hypothesis. However, using 'perceived interactivity' as the second indicator of the interactivity construct, a significant positive relationship and a regression equation to predict the difference scores in involvement were established.

| | |
|---|---|
| **H2c** | **The effect of Involvement with the brand on Perceived Value of the web site.**<br>$H_0$: There will be a zero or negative correlation between the involvement mean scores and the perceived value mean scores.<br>$H_1$: There will be a significant positive correlation between the involvement mean scores and the perceived value mean scores. |

Similar to hypothesis 1c, this hypothesis looks at the relationship between involvement with the brand after the web site interaction and the total perceived value of that web site. Correlation and linear regression analyses were carried out to determine the effect of involvement on total perceived value. There was a strong correlation between these variables (Pearson's $r = 0.68$, $p<0.001$). 46% ($r^2 = 0.46$) of the variation in perceived value can be explained by the variation in involvement. Confidence limits were narrow, showing that we are 95% confident that the population slope would lie between 1.20 and 2.01. The F-value (63.10, df = 1, 75) had an associated probability level of $p<0.001$, showing that the results were unlikely to have arisen by sampling error, assuming the null hypothesis to be true. Hence, the null hypothesis is rejected. The alternative hypothesis, i.e. the perceived value of a web site increases as the involvement with the brand increases, is supported. The regression equation below can be used to predict the perceived value of a web site, when involvement scores for that brand is known:

$\hat{y}$ (predicted perceived value) = (1.605 * involvement) + 48.71

The SPSS output for this hypothesis is given in Table 6-13 below.

**Table 6-13 Correlation and Regression Analyses for the relationship between Involvement and Perceived Value**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Post-test Total Involvement Score | 40.58 | 11.898 | 77 |
| Total Perceived Value Score | 113.86 | 28.254 | 77 |

Model Summary(b)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .676(a) | .457 | .450 | 20.961 |

a Predictors: (Constant), Post-test Total Involvement Score
b Dependent Variable: Total Perceived Value Score

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 27720.182 | 1 | 27720.182 | 63.094 | .000(a) |
| | Residual | 32951.246 | 75 | 439.350 | | |
| | Total | 60671.429 | 76 | | | |

a Predictors: (Constant), Post-test Total Involvement Score
b Dependent Variable: Total Perceived Value Score

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% CI for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 48.713 | 8.542 | | 5.703 | .000 | 31.696 | 65.729 |
| | Post-test Total Involvement Score | 1.605 | .202 | .676 | 7.943 | .000 | 1.203 | 2.008 |

a Dependent Variable: Total Perceived Value Score

**H3a The effect of the Interactivity of the web site on Attitude toward the web site.**

$H_0$: There will be no differences between the attitude toward the web site mean scores among the experimental treatment groups.

$H_1$: There will be significant differences between the attitude toward the web site mean scores among the experimental treatment groups.

Consumers are expected to have a more favourable attitude toward web sites with higher levels of interactivity. Similar to hypotheses 1b and 2b, this hypothesis was tested two-folds. First, a one-way analysis of variance was applied to determine the significance of variances in attitude towards web site scores among treatment groups, as they represented categorical levels of interactivity. As seen from Table 6-14 below, this analysis showed that there were no statistically significant differences in attitude towards web site scores among the treatment groups ($F = 2.33$, $df = 2$, $p = 0.104$).

**Table 6-14 One way ANOVA for the differences in attitude towards the web site scores**

Descriptives

Total Score - Attitude toward web site

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Vauxhall | 26 | 12.92 | 3.836 | .752 | 11.37 | 14.47 |
| Ford | 25 | 15.16 | 4.896 | .979 | 13.14 | 17.18 |
| Volkswagen | 26 | 15.46 | 5.046 | .990 | 13.42 | 17.50 |
| Total | 77 | 14.51 | 4.701 | .536 | 13.44 | 15.57 |

ANOVA

Total Score - Attitude toward web site

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 99.579 | 2 | 49.790 | 2.332 | .104 |
| Within Groups | 1579.668 | 74 | 21.347 | | |
| Total | 1679.247 | 76 | | | |

The overlap in confidence intervals confirmed the conclusion that there were no significant differences between groups. Hence, the null hypothesis, which stated that there would be no significant differences in attitude towards web site scores among treatment groups, cannot be rejected.

To test the same hypothesis using perceived interactivity as the indicator, it was necessary to run correlation and linear regression analyses between perceived interactivity and attitude towards the web site scores. There was a strong correlation between these variables (Pearson's $r = 0.73$, $p<0.001$). 53% ($r^2 = 0.53$) of the variation in attitude towards the web site scores can be explained by the variation in perceived interactivity. Confidence limits were narrow, showing that we are 95% confident that the population slope would lie between 0.26 and 0.40. The F-value (85.80, df = 1, 75) had an associated probability level of $p<0.001$, showing that the results were unlikely to have arisen by sampling error, assuming the null hypothesis to be true. Hence, the null hypothesis is rejected. The regression equation below can be used to predict the attitude towards a web site, when perceived interactivity scores for that web site are known:

Attitude towards the website = (0.329 * perceived interactivity) – 0.223

The SPSS output for this part of the hypothesis is given in Table 6-15 below.

**Table 6-15 Correlation and Regression Analyses for the relationship between Perceived Interactivity and Attitude toward the web site.**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Total Score - Attitude toward web site | 14.51 | 4.701 | 77 |
| Total Perceived Interactivity Score | 44.71 | 10.424 | 77 |

Model Summary(b)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .730(a) | .534 | .527 | 3.232 |

a Predictors: (Constant), Total Perceived Interactivity Score
b Dependent Variable: Total Score - Attitude toward web site

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 896.032 | 1 | 896.032 | 85.803 | .000(a) |
| | Residual | 783.215 | 75 | 10.443 | | |
| | Total | 1679.247 | 76 | | | |

a Predictors: (Constant), Total Perceived Interactivity Score
b Dependent Variable: Total Score - Attitude toward web site

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | -.223 | 1.632 | | -.136 | .892 | -3.474 | 3.029 |
| | Total Perceived Interactivity Score | .329 | .036 | .730 | 9.263 | .000 | .259 | .400 |

a Dependent Variable: Total Score - Attitude toward web site

No significant differences were found between treatment groups in the first part of analysis, which signalled the fact that 'interactive features' as an indicator of interactivity did not support this hypothesis. However, using 'perceived interactivity' as the second indicator of the interactivity construct, a significant positive relationship and a regression equation to predict the attitude toward the web site scores were established.

**H3b The effect of Perceived Value of the web site on Attitude toward the web site.**

$H_0$: There will be a zero or negative correlation between the perceived value mean scores and attitude toward the web site mean scores.

$H_1$: There will be a significant positive correlation between the perceived value mean scores and attitude toward the web site mean scores.

This hypothesis looks at the relationship between perceived value of a web site and consumers' attitude towards that web site. Correlation and linear regression analyses showed that there was a very strong correlation between these variables (Pearson's $r = 0.81$, $p<0.001$). 65% ($r^2 = 0.65$) of the variation in attitude towards a web site can be explained by the variation in the perceived value of that web site. Confidence limits were narrow, showing that we are 95% confident that the population slope would lie between 0.11 and 0.16. The F-value (138.68, df = 1, 75) had an associated probability level of $p<0.001$, showing that the results were unlikely to have arisen by sampling error, assuming the null hypothesis to be true. Hence, the null hypothesis is rejected. The regression equation below can be used to predict the attitude towards a web site, when the perceived value scores for that web site are known:

$\hat{y}$ (predicted attitude towards the web site) = (0.134 * perceived value) – 0.753

The SPSS output for this hypothesis is given in Table 6-16 below.

**Table 6-16 Correlation and Regression Analyses for the relationship between Perceived Value and Attitude toward the web site**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Total Score - Attitude toward web site | 14.51 | 4.701 | 77 |
| Total Perceived Value Score | 113.86 | 28.254 | 77 |

Model Summary(b)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .806(a) | .649 | .644 | 2.803 |

a Predictors: (Constant), Total Perceived Value Score
b Dependent Variable: Total Score - Attitude toward web site

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 1089.845 | 1 | 1089.845 | 138.680 | .000(a) |
| | Residual | 589.402 | 75 | 7.859 | | |
| | Total | 1679.247 | 76 | | | |

a Predictors: (Constant), Total Perceived Value Score
b Dependent Variable: Total Score - Attitude toward web site

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | -.753 | 1.335 | | -.564 | .574 | -3.412 | 1.905 |
| | Total Perceived Value Score | .134 | .011 | .806 | 11.776 | .000 | .111 | .157 |

a Dependent Variable: Total Score - Attitude toward web site

| | |
|---|---|
| **H4** | **The effect of the interactivity of the web site on Perceived Value of the web site.**<br><br>$H_0$: There will be no differences between the perceived value mean scores among the experimental treatment groups.<br><br>$H_1$: There will be significant differences between the perceived value mean scores among the experimental treatment groups. |

Consumers are expected to perceive higher value from web sites with higher levels of interactivity. Similar to Hypotheses 1b, 2b and 3a, this hypothesis was also tested two-folds. First, a one-way analysis of covariance, with the prior brand attitude as the covariate[22], was applied to determine the significance of variances in perceived value scores among treatment groups, as they represented categorical levels of interactivity (Vauxhall=high, Ford=medium, Volkswagen=low). As the total perceived value is the composite of the four components of usability, information, entertainment and interaction value of a web site, the ANCOVAs for individual components and the total composite value scores were obtained. It is generally recommended to adjust the significance level ($\alpha$) to take account of the number of separate analyses done, in order to control the familywise error rate (Dancey and Reidy 2002). As there are four components of this variable, the overall $\alpha$ (0.05) was divided by 4 to arrive at 0.0125. Hence, the significance level for each of the ANCOVA was set at $\alpha = 0.0125$. The results showed that there were no statistically significant differences among treatment groups in information value ($F=0.120$, $df=2$, $p=0.887$), entertainment value ($F=3.676$, $df=2$, $p=0.03$), interaction value ($F=0.551$, $df=2$, $p=0.579$), and total perceived value ($F=1.303$, $df=2$, $p=0.278$). However, there were significant differences in usability

[22] There were significant correlations between the existing brand attitude and perceived value. Hence ANCOVA was appropriate.

(F=5.075, df=2, p=0.009). Table 6-17 presents the results of separate ANCOVAs for each component of interactivity.

**Table 6-17 A one-way ANCOVA for the effect of treatment group on components of perceived value controlling for prior brand attitude.**

Descriptives

| | | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Total Usability Value | Vauxhall | 26 | 35.04 | 9.577 | 1.878 | 31.17 | 38.91 |
| | Ford | 25 | 41.76 | 10.445 | 2.089 | 37.45 | 46.07 |
| | Volkswagen | 26 | 44.69 | 10.150 | 1.991 | 40.59 | 48.79 |
| | Total | 77 | 40.48 | 10.736 | 1.223 | 38.04 | 42.92 |
| Total Information Value | Vauxhall | 26 | 34.04 | 6.440 | 1.263 | 31.44 | 36.64 |
| | Ford | 25 | 34.32 | 9.835 | 1.967 | 30.26 | 38.38 |
| | Volkswagen | 26 | 35.42 | 9.479 | 1.859 | 31.59 | 39.25 |
| | Total | 77 | 34.60 | 8.609 | .981 | 32.64 | 36.55 |
| Total Entertainment Value | Vauxhall | 26 | 9.46 | 4.571 | .897 | 7.62 | 11.31 |
| | Ford | 25 | 12.04 | 5.160 | 1.032 | 9.91 | 14.17 |
| | Volkswagen | 26 | 13.31 | 4.585 | .899 | 11.46 | 15.16 |
| | Total | 77 | 11.60 | 4.982 | .568 | 10.47 | 12.73 |
| Total Interaction Value | Vauxhall | 26 | 27.15 | 8.269 | 1.622 | 23.81 | 30.49 |
| | Ford | 25 | 27.48 | 7.901 | 1.580 | 24.22 | 30.74 |
| | Volkswagen | 26 | 26.92 | 9.234 | 1.811 | 23.19 | 30.65 |
| | Total | 77 | 27.18 | 8.385 | .956 | 25.28 | 29.08 |
| Total Perceived Value Score | Vauxhall | 26 | 105.69 | 23.112 | 4.533 | 96.36 | 115.03 |
| | Ford | 25 | 115.60 | 31.246 | 6.249 | 102.70 | 128.50 |
| | Volkswagen | 26 | 120.35 | 28.970 | 5.682 | 108.64 | 132.05 |
| | Total | 77 | 113.86 | 28.254 | 3.220 | 107.44 | 120.27 |

ANCOVA for Total Usability Value

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|
| Corrected Model | 1743.704(b) | 3 | 581.235 | 6.048 | .001 | .199 | .950 |
| Intercept | 5939.563 | 1 | 5939.563 | 61.804 | .000 | .458 | 1.000 |
| PRE_ATTI | 471.543 | 1 | 471.543 | 4.907 | .030 | .063 | .589 |
| TREAT | 975.469 | 2 | 487.735 | 5.075 | .009 | .122 | .805 |
| Error | 7015.517 | 73 | 96.103 | | | | |
| Total | 134937.000 | 77 | | | | | |
| Corrected Total | 8759.221 | 76 | | | | | |

a Computed using alpha = .05, b R Squared = .199 (Adjusted R Squared = .166)

ANCOVA for Total Information Value

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|
| Corrected Model | 522.611(b) | 3 | 174.204 | 2.489 | .067 | .093 | .595 |
| Intercept | 3879.109 | 1 | 3879.109 | 55.417 | .000 | .432 | 1.000 |
| PRE_ATTI | 494.839 | 1 | 494.839 | 7.069 | .010 | .088 | .747 |
| TREAT | 16.776 | 2 | 8.388 | .120 | .887 | .003 | .068 |
| Error | 5109.908 | 73 | 69.999 | | | | |
| Total | 97800.000 | 77 | | | | | |
| Corrected Total | 5632.519 | 76 | | | | | |

a Computed using alpha = .05
b R Squared = .093 (Adjusted R Squared = .056)

ANCOVA for Total Entertainment Value

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|
| Corrected Model | 217.676(b) | 3 | 72.559 | 3.174 | .029 | .115 | .713 |
| Intercept | 574.595 | 1 | 574.595 | 25.134 | .000 | .256 | .999 |
| PRE_ATTI | 18.117 | 1 | 18.117 | .792 | .376 | .011 | .142 |
| TREAT | 168.067 | 2 | 84.033 | 3.676 | .030 | .091 | .659 |
| Error | 1668.843 | 73 | 22.861 | | | | |
| Total | 12243.000 | 77 | | | | | |
| Corrected Total | 1886.519 | 76 | | | | | |

a Computed using alpha = .05
b R Squared = .115 (Adjusted R Squared = .079)

ANCOVA for Total Interaction Value

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|
| Corrected Model | 370.363(b) | 3 | 123.454 | 1.812 | .152 | .069 | .453 |
| Intercept | 2241.962 | 1 | 2241.962 | 32.910 | .000 | .311 | 1.000 |
| PRE_ATTI | 366.379 | 1 | 366.379 | 5.378 | .023 | .069 | .629 |
| TREAT | 75.025 | 2 | 37.513 | .551 | .579 | .015 | .138 |
| Error | 4973.092 | 73 | 68.125 | | | | |
| Total | 62235.000 | 77 | | | | | |
| Corrected Total | 5343.455 | 76 | | | | | |

a Computed using alpha = .05
b R Squared = .069 (Adjusted R Squared = .031)

ANCOVA for Total Perceived Value

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|
| Corrected Model | 7441.029(b) | 3 | 2480.343 | 3.402 | .022 | .123 | .746 |
| Intercept | 44382.328 | 1 | 44382.328 | 60.866 | .000 | .455 | 1.000 |
| PRE_ATTI | 4537.024 | 1 | 4537.024 | 6.222 | .015 | .079 | .692 |
| TREAT | 1900.220 | 2 | 950.110 | 1.303 | .278 | .034 | .274 |
| Error | 53230.399 | 73 | 729.184 | | | | |
| Total | 1058857.000 | 77 | | | | | |
| Corrected Total | 60671.429 | 76 | | | | | |

a Computed using alpha = .05, b R Squared = .123 (Adjusted R Squared = .087)

To provide a more thorough analysis, a multivariate analysis of covariance (MANCOVA) was also conducted to determine the significance of differences in the multivariate combination of the four components of perceived value among treatment groups, after partialling out the effects of prior brand attitudes. Similar to the analysis of variance / covariance, covariates can be used in the same manner in multivariate analysis, changing a MANOVA to a MANCOVA (Weinfurt 1995). The frequency distributions of some of the variables slightly deviated from normality, and the Box's M test showed that there was a slight deviation from the equality of covariance matrices. However, it was still decided to use MANCOVA because it is robust to violations of these assumptions (Weinfurt 1995), particularly when the sample sizes are equal and there is a reasonable number of (i.e. minimum 12) participants per group (Dancey and Reidy 2002).

The data were analysed with a one-factor interactivity (at three levels) MANCOVA, using the prior brand attitude scores as the covariate. The analysis revealed that there was a multivariate difference between the three groups that was unlikely to have resulted from sampling error alone ($F(8,140) = 2.751$, $p = 0.008$, Wilks' $\lambda = 0.75$). The associated power was 0.92. Hence, the null hypothesis is rejected.

**Table 6-18 MANCOVA for components of Perceived Value controlling for prior brand attitude**

Multivariate Tests

| | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|
| Wilks' lambda | .750 | 2.706 | 8.000 | 140.000 | .008 | .134 | .923 |

F tests the multivariate effect of Treatment Group. The test is based on the linearly independent pairwise comparisons among the estimated marginal means.
a Computed using alpha = .05

To determine the contribution of each independent variable to the overall multivariate difference, univariate tests were examined. These confirmed the findings from individual ANCOVAs, with only the usability value ($F = 5.075$, $df = 2$, $p = 0.009$) contributing to the multivariate difference. Although support was found for the alternative hypothesis, which suggested there would be group differences, post-hoc tests with Bonferroni adjustment showed that these differences were not in the expected direction. The usability values of both the Volkswagen web site (effect size (d) = 0.98) and the Ford web site (effect size (d) = 0.67) were significantly higher than that of the Vauxhall web site. There were no significant differences between Volkswagen and Ford.

For the second part of testing this hypothesis, it was necessary to run correlation and linear regression analyses between perceived interactivity and perceived value scores, using perceived interactivity as the indicator. There was a strong correlation between these variables (Pearson's $r = 0.72$, $p<0.001$). 52% ($r^2 = 0.52$) of the variation in perceived value scores could be explained by the variation in perceived interactivity. Confidence limits were narrow, showing that we are 95% confident that the population slope would lie between 1.53 and 2.39. The F-value (81.59, $df = 1, 75$) had an associated probability level of $p<0.001$, showing that the results were unlikely to have arisen by sampling error, assuming the null hypothesis to be true. Hence, the null hypothesis is rejected. The alternative hypothesis, which stated that the total perceived value scores would increase when the perceived interactivity of a web site increased, is supported. The regression equation below can be used to predict the perceived value of a web site, when perceived interactivity scores for that web site are known:

$\hat{y}$ (predicted perceived value of the website) = (1.957 * perceived interactivity) + 26.37

The SPSS output for this hypothesis is given in Table 6-19 below.

**Table 6-19 Correlation and Regression Analyses for the relationship between perceived interactivity and perceived value.**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Total Perceived Value Score | 113.86 | 28.254 | 77 |
| Total Perceived Interactivity Score | 44.71 | 10.424 | 77 |

Model Summary(b)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .722(a) | .521 | .515 | 19.684 |

a Predictors: (Constant), Total Perceived Interactivity Score
b Dependent Variable: Total Perceived Value Score

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 31612.142 | 1 | 31612.142 | 81.589 | .000(a) |
| | Residual | 29059.287 | 75 | 387.457 | | |
| | Total | 60671.429 | 76 | | | |

a Predictors: (Constant), Total Perceived Interactivity Score
b Dependent Variable: Total Perceived Value Score

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 26.370 | 9.942 | | 2.652 | .010 | 6.565 | 46.176 |
| | Total Perceived Interactivity Score | 1.957 | .217 | .722 | 9.033 | .000 | 1.525 | 2.388 |

a Dependent Variable: Total Perceived Value Score

The differences found between treatment groups in the first part of analysis were not in the expected direction, which signalled the fact that 'interactive features' as an indicator of interactivity did not support this hypothesis. However, using 'perceived interactivity' as the second indicator of the interactivity construct, a significant positive relationship and a regression equation to predict the perceived value of a web site were established.

**H5a The effect of the interactivity of the web site on Perceived Control.**

$H_0$: There will be no differences between the perceived control mean scores among experimental treatment groups.

$H_1$: There will be significant differences between the perceived control mean scores among experimental treatment groups.

Consumers are expected to perceive themselves to be more in control of web sites with higher levels of interactivity. Similar to Hypothesis 1b, 2b, 3a and 4, this hypothesis was also tested two-folds. First, a one-way analysis of variance was applied to determine the significance of variances in perceived control scores among treatment groups, as they represented categorical levels of interactivity (Vauxhall=high, Ford=medium, Volkswagen=low). As seen from Table 6-20 below, this analysis showed that there were no statistically significant differences in perceived control scores among the treatment groups ($F = 2.297$, $df = 2$, $p = 0.108$). 95% confidence intervals also showed an overlap between treatment groups. Therefore, the null hypothesis cannot be rejected.

**Table 6-20 One way ANOVA for the differences in perceived control scores**

Descriptives

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Vauxhall | 26 | 15.23 | 5.479 | 1.075 | 13.02 | 17.44 |
| Ford | 25 | 16.08 | 5.507 | 1.101 | 13.81 | 18.35 |
| Volkswagen | 26 | 18.38 | 5.470 | 1.073 | 16.18 | 20.59 |
| Total | 77 | 16.57 | 5.578 | .636 | 15.31 | 17.84 |

ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 138.248 | 2 | 69.124 | 2.297 | .108 |
| Within Groups | 2226.609 | 74 | 30.089 | | |
| Total | 2364.857 | 76 | | | |

To test the same hypothesis using perceived interactivity as the indicator, it was necessary to run correlation and linear regression analyses between perceived interactivity and perceived control scores. There was a moderately strong correlation between these variables (Pearson's $r = 0.48$, $p<0.001$). 23% ($r^2 = 0.23$) of the variation in perceived control scores can be explained by the variation in perceived interactivity. Confidence limits were narrow, showing that we are 95% confident that the population slope would lie between 0.15 and 0.36. The F-value (22.00, df = 1, 75) had an associated probability level of $p<0.001$, showing that the results were unlikely to have arisen by sampling error, assuming the null hypothesis to be true. Hence, the null hypothesis is rejected. The regression equation below can be used to predict the perceived control of a web site, when perceived interactivity scores for that web site are known:

$$\hat{y} \text{ (predicted perceived control)} = (0.255 * \text{perceived interactivity}) + 5.175$$

The SPSS output for this hypothesis is given in Table 6-21 below.

**Table 6-21 Correlation and Regression Analyses for the relationship between perceived interactivity and perceived control.**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Total Perceived Control Score | 16.57 | 5.578 | 77 |
| Total Perceived Interactivity Score | 44.71 | 10.424 | 77 |

Model Summary(b)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .476(a) | .227 | .217 | 4.938 |

a Predictors: (Constant), Total Perceived Interactivity Score
b Dependent Variable: Total Perceived Control Score

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 536.374 | 1 | 536.374 | 22.001 | .000(a) |
| | Residual | 1828.483 | 75 | 24.380 | | |
| | Total | 2364.857 | 76 | | | |

a Predictors: (Constant), Total Perceived Interactivity Score
b Dependent Variable: Total Perceived Control Score

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 5.175 | 2.494 | | 2.075 | .041 | .207 | 10.144 |
| | Total Perceived Interactivity Score | .255 | .054 | .476 | 4.690 | .000 | .147 | .363 |

a Dependent Variable: Total Perceived Control Score

No significant differences were found between treatment groups in the first part of analysis, which signalled the fact that 'interactive features' as an indicator of interactivity did not support this hypothesis. However, using 'perceived interactivity' as the second indicator of the interactivity construct, a significant positive relationship and a regression equation to predict perceived control were established.

**H5b The effect of Perceived Control on Perceived Value of the web site.**

$H_0$: There will be a zero or negative correlation between the perceived control mean scores and the perceived value mean scores.

$H_1$: There will be a significant positive correlation between the perceived control mean scores and the perceived value mean scores.

This hypothesis looks at the relationship between perceived control and perceived value of a web site. Correlation and linear regression analyses showed that there was a strong correlation between these variables (Pearson's $r = 0.50$, $p<0.001$). 25% ($r^2 = 0.25$) of the variation in the perceived value scores of a web site can be explained by the variation in perceived control scores of that web site. Confidence limits were narrow, showing that we are 95% confident that the population slope would lie between 1.52 and 3.54. The F-value (24.81, df = 1, 75) had an associated probability level of $p<0.001$, showing that the results were unlikely to have arisen by sampling error, assuming the null hypothesis to be true. Hence, the null hypothesis is rejected. The regression equation below can be used to predict the perceived value scores of a web site, when the perceived control scores for that web site are known:

$\hat{y}$ (predicted perceived value) = (2.525 * perceived control) + 72.007

The SPSS output for this hypothesis is given in Table 6-22 below.

**Table 6-22 Correlation and Regression Analyses for the relationship between perceived control and perceived value.**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Total Perceived Value Score | 113.86 | 28.254 | 77 |
| Total Perceived Control Score | 16.57 | 5.578 | 77 |

Model Summary(b)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .499(a) | .249 | .239 | 24.655 |

a Predictors: (Constant), Total Perceived Control Score
b Dependent Variable: Total Perceived Value Score

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 15082.601 | 1 | 15082.601 | 24.813 | .000(a) |
| | Residual | 45588.828 | 75 | 607.851 | | |
| | Total | 60671.429 | 76 | | | |

a Predictors: (Constant), Total Perceived Control Score
b Dependent Variable: Total Perceived Value Score

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 72.007 | 8.859 | | 8.128 | .000 | 54.359 | 89.655 |
| | Total Perceived Control Score | 2.525 | .507 | .499 | 4.981 | .000 | 1.515 | 3.535 |

a Dependent Variable: Total Perceived Value Score

**H6a** **The effect of interactivity of the web site on expectations from the brand.**

$H_0$: There will be no differences between the expectations mean scores among experimental treatment groups.

$H_1$: There will be significant differences between the expectations mean scores among experimental treatment groups.

Consumers are expected to rate highly interactive web sites as exceeding their expectations. Similar to Hypothesis 1b, 2b, 3a, 4 and 5a, this hypothesis was also tested two-folds. First, a one-way analysis of variance was applied to determine the significance of variances in expectations among treatment groups, as they represented categorical levels of interactivity (Vauxhall=high, Ford=medium, Volkswagen=low). As seen from Table 6-23 below, this analysis showed that there were no statistically significant differences in expectations among the treatment groups ($F = 0.42$, $df = 2$, $p = 0.658$). 95% confidence intervals also showed an overlap between treatment groups. Therefore, the null hypothesis cannot be rejected.

**Table 6-23 One way ANOVA for the differences in expectation scores**

Descriptives

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Vauxhall | 26 | 3.42 | .809 | .159 | 3.10 | 3.75 |
| Ford | 25 | 3.68 | 1.030 | .206 | 3.26 | 4.10 |
| Volkswagen | 26 | 3.54 | 1.140 | .223 | 3.08 | 4.00 |
| Total | 77 | 3.55 | .994 | .113 | 3.32 | 3.77 |

ANOVA

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | .843 | 2 | .422 | .420 | .658 |
| Within Groups | 74.248 | 74 | 1.003 | | |
| Total | 75.091 | 76 | | | |

To test the same hypothesis using perceived interactivity as the indicator, it was necessary to run correlation and linear regression analyses between perceived interactivity and expectation scores. There was quite a strong correlation between these variables (Pearson's $r = 0.65$, $p<0.001$). 42% ($r^2 = 0.42$) of the variation in expectation scores can be explained by the variation in perceived interactivity. Confidence limits were narrow, showing that we are 95% confident that the population slope would lie between 0.045 and 0.078. The F-value (53.46, df = 1, 75) had an associated probability level of $p<0.001$, showing that the results were unlikely to have arisen by sampling error, assuming the null hypothesis to be true. Hence, the null hypothesis is rejected. The regression equation below can be used to predict expectations from a web site, when perceived interactivity scores for that web site are known:

$\hat{y}$ (predicted expectations) = (0.062 * perceived interactivity) + 0.795

The SPSS output for this hypothesis is given in Table 6-24 below.

**Table 6-24 Correlation and Regression Analyses for the relationship between perceived interactivity and expectations.**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Expectations | 3.55 | .994 | 77 |
| Total Perceived Interactivity Score | 44.71 | 10.424 | 77 |

Model Summary(b)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .645(a) | .416 | .408 | .765 |

a Predictors: (Constant), Total Perceived Interactivity Score
b Dependent Variable: Expectations

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 31.251 | 1 | 31.251 | 53.464 | .000(a) |
| | Residual | 43.840 | 75 | .585 | | |
| | Total | 75.091 | 76 | | | |

a Predictors: (Constant), Total Perceived Interactivity Score
b Dependent Variable: Expectations

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | .795 | .386 | | 2.058 | .043 | .025 | 1.564 |
| | Total Perceived Interactivity Score | .062 | .008 | .645 | 7.312 | .000 | .045 | .078 |

a Dependent Variable: Expectations

No significant differences were found between treatment groups in the first part of analysis, which signalled the fact that 'interactive features' as an indicator of interactivity did not support this hypothesis. However, using 'perceived interactivity' as the second indicator of the interactivity construct, a significant positive relationship and a regression equation to predict expectations were established.

**H6b The effect of expectations from the brand on Perceived Value of the web site.**

$H_0$: There will be a zero or negative correlation between expectations and the perceived value mean scores.

$H_1$: There will be a significant positive correlation between expectations and the perceived value mean scores.

This hypothesis looks at the relationship between expectations and perceived value of a web site. Correlation and linear regression analyses showed that there was a strong positive correlation between these variables (Pearson's $r = 0.70$, $p<0.001$). 49% ($r^2 = 0.49$) of the variation in the perceived value scores of a web site can be explained by the variation in expectation scores of that web site. Confidence limits were narrow, showing that we are 95% confident that the population slope would lie between 15.23 and 24.57. The F-value (72.04, df = 1, 75) had an associated probability level of $p<0.001$, showing that the results were unlikely to have arisen by sampling error, assuming the null hypothesis to be true. Hence, the null hypothesis is rejected. The regression equation below can be used to predict the perceived value scores of a web site, when the expectation scores for that web site are known:

$\hat{y}$ (predicted perceived value) = (19.896 * expectations) + 43.317

The SPSS output for this hypothesis is given in Table 6-25 below.

**Table 6-25 Correlation and Regression Analyses for the relationship between expectations and perceived value.**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Total Perceived Value Score | 113.86 | 28.254 | 77 |
| Expectations | 3.55 | .994 | 77 |

Model Summary(b)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .700(a) | .490 | .483 | 20.313 |

a Predictors: (Constant), Expectations
b Dependent Variable: Total Perceived Value Score

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 29724.450 | 1 | 29724.450 | 72.037 | .000(a) |
| | Residual | 30946.978 | 75 | 412.626 | | |
| | Total | 60671.429 | 76 | | | |

a Predictors: (Constant), Expectations
b Dependent Variable: Total Perceived Value Score

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 43.317 | 8.627 | | 5.021 | .000 | 26.130 | 60.504 |
| | Expectations | 19.896 | 2.344 | .700 | 8.487 | .000 | 15.226 | 24.566 |

a Dependent Variable: Total Perceived Value Score

| | |
|---|---|
| **H7** | **The effect of Interactivity on the means of the joint distribution of brand personality, involvement, perceived control and expectations.**<br>$H_0$: There will be no differences between the means of the joint distribution of the dependent variables, brand personality, involvement, perceived control and expectations, among experimental treatment groups.<br>$H_1$: There will be significant differences between the means of the joint distribution of the dependent variables, brand personality, involvement, perceived control and expectations, among experimental treatment groups. |

This hypothesis requires a multivariate analysis to determine the differences in the joint distribution of four dependent variables among the treatment groups. Multivariate analysis of variance (MANOVA) is suitable to test this hypothesis, as this method assesses the degree to which independent variables account for the variance of a linear combination of the dependent variables (Dancey and Reidy 2002). A number of assumptions associated with MANOVA need to be met in order to achieve a meaningful analysis. These assumptions are that the vector of the dependent variables follow a multivariate normal distribution (multivariate normality); the variance-covariance matrices are equal across the cells formed by the between-subjects effects (homogeneity of covariance matrices); and independence of observations (Weinfurt 1995).

Multivariate analysis of variance designs also require that the dependent variables correlate with one another (Weinfurt 1995). Table 6-26 below shows that the four dependent variables in this hypothesis are all significantly correlated to one another.

**Table 6-26 Correlations between dependent variables for hypothesis 7**

| | | Posttest – pretest personality scores | Posttest - pretest involvement scores | Total Perceived Control Score | Expectations |
|---|---|---|---|---|---|
| Posttest – pretest personality scores | Pearson Correlation | 1 | .615(**) | .236(*) | .634(**) |
| | Sig. (2-tailed) | . | .000 | .039 | .000 |
| | N | 77 | 77 | 77 | 77 |
| Posttest - pretest involvement | Pearson Correlation | .615(**) | 1 | .303(**) | .601(**) |
| | Sig. (2-tailed) | .000 | . | .007 | .000 |
| | N | 77 | 77 | 77 | 77 |
| Total Perceived Control Score | Pearson Correlation | .236(*) | .303(**) | 1 | .368(**) |
| | Sig. (2-tailed) | .039 | .007 | . | .001 |
| | N | 77 | 77 | 77 | 77 |
| Expectations | Pearson Correlation | .634(**) | .601(**) | .368(**) | 1 |
| | Sig. (2-tailed) | .000 | .000 | .001 | . |
| | N | 77 | 77 | 77 | 77 |

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Although box plots showed a few outliers for some of the variables, the normality tests and histograms revealed that the distributions of all variables for each treatment group were normal. Hence, the normality assumption was met. Box's M test was not significant ($p = 0.267$). Hence, the assumption of homogeneity of variance-covariance matrices was met (Dancey and Reidy 2002).

At the beginning of this section, individual ANOVAs for each dependent variable were conducted separately in Hypotheses 1b, 2b, 5a and 6a. The results showed significant group differences for hypothesis 1b, where the Ford group had a significantly higher increase in the excitement dimension of brand personality than the two other groups. In addition to the insight gained from individual ANOVAs, the multivariate analysis of variance can offer a richer analysis of data by detecting differences on the linear composite of a set of dependent variables, even in the absence of individual differences

in ANOVAs (Weinfurt 1995). Hence, the data were analysed with a one-factor interactivity (at three levels) MANOVA. The analysis revealed that there was a multivariate difference between the three groups that was unlikely to have resulted from sampling error alone ($F(8,142) = 2.27$, $p = 0.026$, Wilks' $\lambda = 0.786$). The associated power was high (0.86). Hence, the null hypothesis is rejected.

Univariate tests showed that the "difference between posttest and pretest personality scores" variable was the only variable contributing to the multivariate difference ($F = 4.242$, $df = 2$, $p = 0.018$). This finding is consistent with the results of previous individual ANOVAs. Multiple comparisons with Bonferroni adjustment showed that the increase in mean scores of the excitement dimension of brand personality was significantly higher for the Ford group than the Volkswagen group. There were no differences between the Vauxhall and the other groups.

**Table 6-27 Multivariate Analysis of Variance for the effect of Interactivity on the means of the joint distribution of brand personality, involvement, perceived control and expectations.**

Descriptive Statistics

| | Treatment Group | Mean | Std. Deviation | N |
|---|---|---|---|---|
| Difference between post and pretest personality scores | Vauxhall | 4.3462 | 10.78496 | 26 |
| | Ford | 11.3600 | 13.66833 | 25 |
| | Volkswagen | 1.1538 | 13.68413 | 26 |
| | Total | 5.5455 | 13.30665 | 77 |
| Difference between post and pretest involvement scores | Vauxhall | 2.8846 | 13.86889 | 26 |
| | Ford | 9.4000 | 9.89107 | 25 |
| | Volkswagen | 4.2308 | 12.11382 | 26 |
| | Total | 5.4545 | 12.26092 | 77 |
| Total Perceived Control Score | Vauxhall | 15.23 | 5.479 | 26 |
| | Ford | 16.08 | 5.507 | 25 |
| | Volkswagen | 18.38 | 5.470 | 26 |
| | Total | 16.57 | 5.578 | 77 |
| Expectations | Vauxhall | 3.42 | .809 | 26 |
| | Ford | 3.68 | 1.030 | 25 |
| | Volkswagen | 3.54 | 1.140 | 26 |
| | Total | 3.55 | .994 | 77 |

Box's Test of Equality of Covariance Matrices(a)

| | |
|---|---|
| Box's M | 25.455 |
| F | 1.173 |
| df1 | 20 |
| df2 | 19599.437 |
| Sig. | .267 |

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups. a Design: Intercept+TREAT

Multivariate Tests

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared | Observed Power(a) |
|---|---|---|---|---|---|---|---|---|
| Intercept | Wilks' Lambda | .037 | 461.382 | 4.000 | 71.000 | .000 | .963 | 1.000 |
| TREAT | Wilks' Lambda | .786 | 2.270 | 8.000 | 142.000 | .026 | .113 | .861 |

a Computed using alpha = .05

Estimates

| Dependent Variable | Treatment Group | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| Difference between post and pretest personality scores | Vauxhall | 4.346 | 2.505 | -.645 | 9.337 |
| | Ford | 11.360 | 2.555 | 6.270 | 16.450 |
| | Volkswagen | 1.154 | 2.505 | -3.837 | 6.145 |
| Difference between post and pretest involvement scores | Vauxhall | 2.885 | 2.372 | -1.842 | 7.611 |
| | Ford | 9.400 | 2.419 | 4.580 | 14.220 |
| | Volkswagen | 4.231 | 2.372 | -.496 | 8.957 |
| Total Perceived Control Score | Vauxhall | 15.231 | 1.076 | 13.087 | 17.374 |
| | Ford | 16.080 | 1.097 | 13.894 | 18.266 |
| | Volkswagen | 18.385 | 1.076 | 16.241 | 20.528 |
| Expectations | Vauxhall | 3.423 | .196 | 3.032 | 3.815 |
| | Ford | 3.680 | .200 | 3.281 | 4.079 |
| | Volkswagen | 3.538 | .196 | 3.147 | 3.930 |

Pairwise Comparisons

| Dependent Variable | (I) Treatment Group | (J) Treatment Group | Mean Diff. (I-J) | Std. Error | Sig.(a) | 95% CIs for Difference(a) | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound |
| Difference between post and pretest personality scores | Vauxhall | Ford | -7.014 | 3.578 | .161 | -15.778 | 1.750 |
| | | Volkswagen | 3.192 | 3.543 | 1.000 | -5.486 | 11.870 |
| | Ford | Vauxhall | 7.014 | 3.578 | .161 | -1.750 | 15.778 |
| | | Volkswagen | 10.206(*) | 3.578 | .017 | 1.442 | 18.970 |
| | Volkswagen | Vauxhall | -3.192 | 3.543 | 1.000 | -11.870 | 5.486 |
| | | Ford | -10.206(*) | 3.578 | .017 | -18.970 | -1.442 |
| Difference between post and pretest involvement scores | Vauxhall | Ford | -6.515 | 3.388 | .175 | -14.814 | 1.784 |
| | | Volkswagen | -1.346 | 3.355 | 1.000 | -9.563 | 6.871 |
| | Ford | Vauxhall | 6.515 | 3.388 | .175 | -1.784 | 14.814 |
| | | Volkswagen | 5.169 | 3.388 | .394 | -3.130 | 13.468 |
| | Volkswagen | Vauxhall | 1.346 | 3.355 | 1.000 | -6.871 | 9.563 |
| | | Ford | -5.169 | 3.388 | .394 | -13.468 | 3.130 |
| Total Perceived Control Score | Vauxhall | Ford | -.849 | 1.537 | 1.000 | -4.613 | 2.915 |
| | | Volkswagen | -3.154 | 1.521 | .125 | -6.881 | .573 |
| | Ford | Vauxhall | .849 | 1.537 | 1.000 | -2.915 | 4.613 |
| | | Volkswagen | -2.305 | 1.537 | .414 | -6.068 | 1.459 |
| | Volkswagen | Vauxhall | 3.154 | 1.521 | .125 | -.573 | 6.881 |
| | | Ford | 2.305 | 1.537 | .414 | -1.459 | 6.068 |
| Expectations | Vauxhall | Ford | -.257 | .281 | 1.000 | -.944 | .430 |
| | | Volkswagen | -.115 | .278 | 1.000 | -.796 | .565 |
| | Ford | Vauxhall | .257 | .281 | 1.000 | -.430 | .944 |
| | | Volkswagen | .142 | .281 | 1.000 | -.546 | .829 |
| | Volkswagen | Vauxhall | .115 | .278 | 1.000 | -.565 | .796 |
| | | Ford | -.142 | .281 | 1.000 | -.829 | .546 |

Based on estimated marginal means

* The mean difference is significant at the .05 level.

a Adjustment for multiple comparisons: Bonferroni.

| | |
|---|---|
| **H8** | **The joint effects of brand personality, involvement, perceived control and expectations on perceived value.**<br>$H_0$: There will be a zero or negative correlation between the combined effects of brand personality, involvement, perceived control and expectations, and the perceived value mean scores.<br>$H_1$: There will be a significant positive correlation between the combined effects of brand personality, involvement, perceived control and expectations, and the perceived value mean scores. |

This hypothesis requires a multivariate analysis to determine the joint effects of brand personality, involvement, perceived control and expectations on perceived value of the web site. Multiple regression analysis was utilised to this effect.

Multiple regression is an extension of linear regression, which gives information on how the combined independent variables relate to the dependent variable (Dancey and Reidy 2002). There are certain assumptions to be met when using multiple regression. First, there has to be enough participants in the study. Although the absolute minimum is five, the desired level is 15-20 observations for each independent variable, (Hair *et al.* 1995; Dancey and Reidy 2002). As there are four independent variables for this hypothesis, 60-80 participants would meet the desired level of observations. Our sample was 77, so this assumption was met. Second, variables should be drawn from a normally distributed population of scores. Histograms and box plots for each variable showed that they were all normally distributed. They all had a slight negative skew, which is acceptable (Dancey and Reidy 2002). Third, the independent variables should be linearly related to the dependent variable. Scattergrams for all independent variables against the dependent variable confirmed a positive linear relationship. Fourth,

outliers may need to be eliminated, as they can have a big influence on regression analysis. There was only one outlier in the expectations variable, which reflected a genuine case of the web site being 'much worse than expected'. However, as the same respondent did not have an extreme score in other variables; and the results of the analysis did not change significantly after deleting this case, it was kept in the analysis. The final assumption is about multicollinearity, which occurs when the independent variables correlate very highly (0.80 or above) with each other (Dancey and Reidy 2002). The ideal situation is where the independent variables have high correlations with the dependent variable, but not with each other. In our case, the independent variables were intercorrelated but not very strongly. These correlations ranged from 0.35 to 0.69. Each independent variable's strongest correlation was to the dependent variable. These correlations ranged from 0.5 to 0.75. Furthermore, the collinearity diagnostics in Table 6-28 showed that the condition indices were all below 15, which is an indication that multicollinearity was not a problem. (A condition index greater than 15 indicates a possible problem and an index greater than 30 suggests a serious problem with collinearity (SPSS Inc. 2002)). Hence, all assumptions to carry out multiple regression for this hypothesis were met.

Table 6-28 below displays the correlations between the variables, the unstandardised regression coefficients (B) and intercept, the standardised regression coefficients (β), R, $R^2$ and adjusted $R^2$, and the collinearity diagnostics.

**Table 6-28 Multiple Regression Analysis for the joint effects of brand personality, involvement, perceived control and expectations on perceived value.**

Descriptive Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Total Perceived Value Score | 113.86 | 28.254 | 77 |
| Post-test Total Brand Personality Score | 41.17 | 14.704 | 77 |
| Post-test Total Involvement Score | 40.58 | 11.898 | 77 |
| Total Perceived Control Score | 16.57 | 5.578 | 77 |
| Expectations | 3.55 | .994 | 77 |

Correlations

| | | Total Perceived Value Score | Post-test Total Brand Personality Score | Post-test Total Involvement Score | Total Perceived Control Score | Expectations |
|---|---|---|---|---|---|---|
| Pearson Correlation | Total Perceived Value Score | 1.000 | .749 | .676 | .499 | .700 |
| | Post-test Total Brand Personality Score | .749 | 1.000 | .687 | .351 | .576 |
| | Post-test Total Involvement Score | .676 | .687 | 1.000 | .348 | .541 |
| | Total Perceived Control Score | .499 | .351 | .348 | 1.000 | .368 |
| | Expectations | .700 | .576 | .541 | .368 | 1.000 |
| Sig. (1-tailed) | Total Perceived Value Score | . | .000 | .000 | .000 | .000 |
| | Post-test Total Brand Personality Score | .000 | . | .000 | .001 | .000 |
| | Post-test Total Involvement Score | .000 | .000 | . | .001 | .000 |
| | Total Perceived Control Score | .000 | .001 | .001 | . | .000 |
| | Expectations | .000 | .000 | .000 | .000 | . |

Model Summary(b)

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .848(a) | .719 | .704 | 15.382 |

a Predictors: (Constant), Expectations, Total Perceived Control Score, Post-test Total Involvement Score, Post-test Total Brand Personality Score

b Dependent Variable: Total Perceived Value Score

ANOVA(b)

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 43636.404 | 4 | 10909.101 | 46.108 | .000(a) |
| | Residual | 17035.024 | 72 | 236.598 | | |
| | Total | 60671.429 | 76 | | | |

a Predictors: (Constant), Expectations, Total Perceived Control Score, Post-test Total Involvement Score, Post-test Total Brand Personality Score, b Dependent Variable: Total Perceived Value Score

Coefficients(a)

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta (β) | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 19.066 | 7.697 | | 2.477 | .016 | 3.722 | 34.409 |
| | Post-test Total Brand Personality Score | .726 | .176 | .378 | 4.119 | .000 | .374 | 1.077 |
| | Post-test Total Involvement Score | .428 | .212 | .180 | 2.021 | .047 | .006 | .850 |
| | Total Perceived Control Score | .947 | .348 | .187 | 2.720 | .008 | .253 | 1.641 |
| | Expectations | 8.985 | 2.279 | .316 | 3.942 | .000 | 4.442 | 13.529 |

a Dependent Variable: Total Perceived Value Score

Collinearity Diagnostics(a)

| Model | Dimension | Eigen value | Condition Index | Variance Proportions | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Constant | Post-test Total Brand Personality Score | Post-test Total Involvement Score | Total Perceived Control Score | Expectations |
| 1 | 1 | 4.810 | 1.000 | .00 | .00 | .00 | .00 | .00 |
| | 2 | .078 | 7.862 | .03 | .19 | .05 | .60 | .01 |
| | 3 | .051 | 9.700 | .49 | .21 | .00 | .40 | .06 |
| | 4 | .034 | 11.901 | .19 | .00 | .22 | .00 | .87 |
| | 5 | .027 | 13.437 | .29 | .59 | .73 | .00 | .06 |

a Dependent Variable: Total Perceived Value Score

The results showed that the association between the dependent and independent variables was very strong (Multiple R = 0.85). Together, excitement dimension of brand personality, involvement with the brand, perceived control of the web site and expectations from the web site accounted for 70% of the variation in perceived value (adjusted $R^2$). All independent variables positively related to perceived value. The regression coefficients and confidence intervals are summarised in Table 6-29.

**Table 6-29 Regression coefficients and confidence intervals**

| INDEPENDENT VARIABLE | UNSTANDARDISED REGRESSION COEFFICIENTS | 95% CONFIDENCE INTERVALS |
|---|---|---|
| EXCITEMENT DIMENSION OF BRAND PERSONALITY | 0.73 | 0.374 – 1.077 |
| INVOLVEMENT | 0.43 | 0.006 – 0.85 |
| PERCEIVED CONTROL | 0.95 | 0.253 – 1.641 |
| EXPECTATIONS | 8.99 | 4.442 – 13.529 |

Since the confidence limits did not encompass a negative value, it can be concluded that the population regression coefficients for all independent variables are positive (Excitement dimension of brand personality: $t = 4.119$, $p<0.001$; Involvement: $t = 2.021$, $p = 0.047$; Perceived Control: $t = 2.72$, $p = 0.008$; Expectations: $t = 3.942$, $p<0.001$). All the probability values are less than 5%, which suggest that the regression coefficients for all variables are unlikely to have arisen by sampling error. The ANOVA table showed that the regression model, with the four independent variables, was statistically significant ($F = 46.108$, $df = 4$, $p<0.001$). Hence, the null hypothesis is rejected.

The standardised regression coefficients show that the excitement dimension of brand personality (0.378), and expectations (0.316) are stronger predictors than involvement (0.18) and perceived control (0.187). All variables are, however, positively and significantly related to perceived value. The regression equation below can be used to predict the perceived value of a web site, when the scores for the four independent variables are known:

$\hat{y}$ (predicted perceived value) = (0.726 * excitement dimension of brand personality) + (0.428 * involvement) + (0.947 * perceived control) + (8.985 * expectations) + 19.066

In the previous parts of this section, individual regression analyses were run between perceived value and each of the four independent variables of interest. These looked at the relationships in isolation; and gave a regression equation to predict values of the dependent variable from each of the independent variable in question. These equations are summarised in Table 6-30 below.

**Table 6-30 Separate regression equations for each independent variable**

| Independent variable | Dependent variable | Regression Equation | Adjusted $R^2$ |
|---|---|---|---|
| Excitement dimension of brand personality | Perceived Value of the web site | ŷ (predicted perceived value) = (1.44*excitement dimension of brand personality) + 54.58 | 0.56 |
| Involvement | Perceived Value of the web site | ŷ (predicted perceived value) = (1.605*involvement) + 48.71 | 0.45 |
| Perceived control | Perceived Value of the web site | ŷ (predicted perceived value) = (2.525*perceived control) + 72.007 | 0.24 |
| Expectations | Perceived Value of the web site | ŷ (predicted perceived value) = (19.896*expectations) + 43.317 | 0.48 |

The adjusted $R^2$s showed that the variance explained by each independent variable ranged from 0.24 to 0.56. Multiple regression model showed that the four independent variables taken together, rather than in isolation, predict the dependent variable better; and account for a higher level of variance explained (Multiple Adjusted $R^2 = 0.70$); and hence represent a better model fit.

## 6.6 SUMMARY AND DISCUSSION OF FINDINGS

The results of hypothesis testing showed a strong support for the majority of hypotheses as well as major parts of the overall conceptual model. Table 6-31 below summarises these findings.

**Table 6-31 Summary of hypothesis testing**

| HYPOTHESIS NO. | VARIABLES | METHOD OF ANALYSIS | RESULTS | COMMENTS |
|---|---|---|---|---|
| 1a | Pre-test & Post-test measures of the excitement dimension of brand personality | Paired samples t-test | **$H_0$ rejected** (t=-3.657, df=76, p<0.001). | Consumers perceive brands to be more exciting online than offline. |
| 1b | Difference between post-test & pre-test measures of the excitement dimension of brand personality by treatment group | 1)One-way ANOVA | 1) **$H_0$ rejected** (F=4.242, df=2,74, p=0.018) | Consumers' rating of the excitement dimension of brand personality increased significantly more for the Ford group as opposed to Vauxhall or Volkswagen, after web site interaction. However, this was not in the expected direction. |
| | | 2) Regression (perceived interactivity & difference scores) | 2) **$H_0$ rejected** (F=14.754, df=1,75; p<0.001). | Two indicators of interactivity did not converge on this variable. 'Perceived interactivity', rather than 'interactive features' explains the differences in the excitement dimension of brand personality scores. |
| 1c | Excitement dimension of brand personality & Perceived Value | Correlation & Regression | **$H_0$ rejected** (F=96.02, df=1,75; p=0.001) Adjusted $R^2$=0.56 | Consumers who find the brand personality exciting after their interaction with the brand's web site are also likely to perceive high value from that web site. This perceived value can be predicted from the excitement dimension of brand personality scores with the following equation: $\hat{y}$ (predicted perceived value) = (1.44*excitement dimension of brand personality) + 54.58 |
| 2a | Pre-test & Post-test measures of Involvement | Paired samples t-test | **$H_0$ rejected** (t=-3.904, df=76, p<0.001). | Consumers become more involved with a brand online than offline. |

| HYPOTHESIS NO. | VARIABLES | METHOD OF ANALYSIS | RESULTS | COMMENTS |
|---|---|---|---|---|
| 2b | Difference between pre-test & post-test measures of involvement by treatment group | 1) One-way ANCOVA (prior brand attitude as covariate) | 1) **$H_0$ cannot be rejected** ((F=1.799, df=2, p=0.173). | There were no significant differences between treatment groups, in terms of the increase in involvement scores after web site interaction. |
| | | 2) Regression | 2) **$H_0$ rejected** (F=9.942, df=1,75; p=0.002). | Two indicators of interactivity did not converge on this variable. 'Perceived interactivity', rather than 'interactive features' explains the differences in involvement scores. |
| 2c | Involvement & Perceived Value | Correlation & Regression | **$H_0$ rejected** (F=63.094, df=1,75, p<0.001) Adjusted $R^2$=0.45 | Consumers who are more involved with a brand's web site are also likely to perceive high value from that web site.<br><br>This perceived value can be predicted from the involvement scores with the following equation: ŷ (predicted perceived value) = (1.605*involvement) + 48.71 |
| 3a | Attitude towards web site by treatment group | 1)One-way ANOVA | 1) **$H_0$ cannot be rejected** (F=2.33, df=2, p= 0.104). | No differences were found in attitudes towards the web site scores between treatment groups. |
| | | 2)Regression (attitude toward web site and perceived interactivity) | 2) **$H_0$ rejected** (F=85.803, df=1,75; p<0.001). | Two indicators of interactivity did not converge on this variable. 'Perceived interactivity', rather than 'interactive features' has an effect on attitude toward the web site. |
| 3b | Perceived Value & Attitude toward the web site | Correlation & Regression | **$H_0$ rejected** (F=138.68, df=1,75; p<0.001). | Consumers who perceive high value from a web site are also likely to have favourable attitudes towards that web site.<br><br>Their attitudes can be predicted from the perceived value scores with the following equation: ŷ (predicted attitude towards the web site) = (0.134* perceived value) – 0.753 |

| HYPOTHESIS NO. | VARIABLES | METHOD OF ANALYSIS | RESULTS | COMMENTS |
|---|---|---|---|---|
| 4 | Components of Perceived Value by treatment group | 1a)ANCOVA (prior brand attitude as covariate) | 1a) **Partial support:** Usability component differs by group (F=5.075, df=2, p=0.009). | VW and Ford web sites were perceived as better in usability than Vauxhall web site. However, there were no significant differences in information value, entertainment value, interaction value, or total perceived value of the three web sites. |
| | | 1b)MANCOVA (prior brand attitude as covariate) | 1b) **$H_0$ rejected** (F(8,140) = 2.751, p = 0.008, Wilks' $\lambda$ = 0.75). | There was a significant difference in the multivariate combination of the four components of perceived value among treatment groups, after partialling out the effects of prior brand attitudes. VW and Ford web sites had significantly higher scores in usability than the Vauxhall web site. |
| | | 2)Regression (perceived value and perceived interactivity) | 2) **$H_0$ rejected** (F=81.59, df=1,75, p<0.001). | Consumers who perceive a web site to be highly interactive are also likely to perceive high value from that web site.<br>This value can be predicted from the perceived interactivity scores with the following equation:<br>$\hat{y}$ (predicted perceived value of the website) = (1.957*perceived interactivity) + 26.37 |
| 5a | Perceived Control by treatment group | 1) ANOVA | 1) **$H_0$ cannot be rejected** ((F=2.297, df=2, p=0.108). | There were no significant differences between treatment groups, in terms of the perceived control. |
| | | 2) Regression (perceived control and perceived interactivity) | 2) **$H_0$ rejected** (F=22.001, df=1,75, p<0.001). | Two indicators of interactivity did not converge on this variable. 'Perceived interactivity', rather than 'interactive features' has an effect on perceived control. Consumers' level of perceived control can be predicted from their perceived interactivity scores with the following equation:<br>$\hat{y}$ (predicted perceived control) = (0.255*perceived interactivity) + 5.175 |

| HYPOTHESIS NO. | VARIABLES | METHOD OF ANALYSIS | RESULTS | COMMENTS |
|---|---|---|---|---|
| 5b | Perceived Control & Perceived Value | Correlation & Regression | **$H_0$ rejected** (F=24.813, df=1,75, p<0.001). | Consumers who feel in more control of their interaction with a web site are also likely to perceive high value from that web site.<br><br>This perceived value can be predicted from their perceived control scores with the following equation: ŷ (predicted perceived value) = (2.525*perceived control) + 72.007 |
| 6a | Expectations by treatment group | 1) ANOVA<br><br>2) Regression (expectations and perceived interactivity) | 1) **$H_0$ cannot be rejected** ((F=0.42, df=2, p=0.658).<br><br>2) **$H_0$ rejected** (F=53.464, df=1,75, p<0.001). ŷ (predicted expectations) = (0.062*perceived interactivity) + 0.795 | There were no significant differences between treatment groups, in terms of expectations.<br><br>Two indicators of interactivity did not converge on this variable. 'Perceived interactivity', rather than 'interactive features' has an effect on expectations. |
| 6b | Expectations & Perceived Value | Correlation & Regression | **$H_0$ rejected** (F=72.037, df=1,75, p<0.001). | When consumers think their expectations of a brand web site were met or exceeded, they are likely to perceive high value from that web site.<br><br>This perceived value can be predicted from their expectations scores with the following equation: ŷ (predicted perceived value) = (19.896*expectations) + 43.317 |

| HYPOTHESIS NO. | VARIABLES | METHOD OF ANALYSIS | RESULTS | COMMENTS |
|---|---|---|---|---|
| 7 | Joint distribution of brand personality, involvement, perceived control and expectations by treatment group | MANOVA | **$H_0$ rejected** ($F(8,142) = 2.27$, $p = 0.026$, Wilks' $\lambda = 0.786$). | There was a significant difference among treatment groups in the multivariate combination of the four variables of brand personality, involvement, perceived control and expectations.<br><br>Univariate tests showed that the 'difference between pre-test and post-test personality scores' variable was the only variable contributing to the multivariate difference ($F = 4.242$, $df = 2$, $p = 0.018$). The difference was significantly higher for the Ford group than the Volkswagen group. There were no differences between the Vauxhall and the other groups. |
| 8 | The joint effects of brand personality, involvement, perceived control and expectations on perceived value | Multiple Regression | **$H_0$ rejected** ($F = 46.108$, $df=4$, $p<0.001$). | The model with these four independent variables is a better fit than the individual regression models, as it explains 70% of the variation in perceived value (adjusted $R^2$).<br><br>The perceived value of a web site can be predicted from these four variables with the following equation: $\hat{y}$ (predicted perceived value) = (0.726 * excitement dimension of brand personality) + (0.428 * involvement) + (0.947 * perceived control) + (8.985 * expectations) + 19.066 |

One common finding from the separate analyses was that the two indicators of interactivity ('interactive features' manipulated in the form of brand web sites and 'perceived interactivity' as measured on a 7-point Likert-type scale from the consumers' perspective) did not converge. The Vauxhall web site had been selected to represent the highest level of interactivity, based on the indicator of 'interactive features'. However, the participants in the Vauxhall group perceived the brand's web site as the least

interactive, compared to the Ford and Volkswagen groups. The Volkswagen web site, which had been selected to represent the lowest level of interactivity, in terms of the number of interactive features on the site, was actually perceived to be the most interactive by the participants. However, as there was a predisposition to have the most positive attitudes towards the Volkswagen brand as opposed to the other two brands, it was decided to control for the prior brand attitudes statistically in the analysis. Once the effects of prior brand attitudes were partialled out, the Ford web site had the highest perceived interactivity scores.

'Interactive features' as an indicator of interactivity did not generally hold for most of the hypotheses tested, as the differences among treatment groups on the dependent variables of brand personality, involvement, perceived control and expectations either did not exist or were in an opposite direction. However, 'perceived interactivity' as the second indicator of the interactivity construct, did have a significant impact on these variables, proven by the significant positive relationships and regression equations established so far. Hence, it would be safe to deduce that a higher number of interactive features in a web site does not necessarily guarantee that consumers would perceive the web site as being highly interactive. It can even be argued, based on the opposite direction between the two indicators of interactivity as established from the data, that too many interactive features have a detrimental effect on consumers' perception of interactivity as well as their attitudes towards the web site.

Although the overall model of online consumer-brand interaction developed in this thesis could not be tested simultaneously as a structural equation model due to insufficient sample sizes, major parts of it were tested using both univariate and multivariate methods as shown in the previous section, which established satisfactory

and statistically significant results.

**To summarise, empirical results supported the conceptual proposition that the concept of interactivity is important and influential in understanding consumer behaviour on the Internet. Interactivity had a significant effect on brand personality, involvement, perceived control and expectations, which in turn, jointly predicted perceived value from a web site, which consequently predicted the attitude towards that web site. Support was also found for the propositions that consumers perceive brands as more exciting and involving online than offline.**

## 6.7 FURTHER POST-HOC ANALYSES

Two open-ended questions regarding prior brand attitudes and comments on the web sites were included in the questionnaires to add qualitative verification and insight to the study. Analyses of these comments supported the quantitative finding that prior brand attitudes to Volkswagen were more positive compared to the other two brands. There were only three people expressing a negative attitude towards Volkswagen, as opposed to seven and five respectively for Vauxhall and Ford. Positive remarks about the brand were also the highest for Volkswagen (12) as opposed to Vauxhall and Ford (4 and 3 respectively).

Similarly, negative comments for the overall assessment of the web site were highest for Vauxhall (14) as opposed to Ford (8) and Volkswagen (5). Consistent with this, there were higher numbers of positive evaluations for Ford (14) and Volkswagen (14) than Vauxhall (10). Evidence was found in open-ended comments to support the post-hoc proposition that too many interactive features could have a detrimental effect on

consumers' attitudes towards the web site, where nine respondents specifically identified the Vauxhall web site as having too many functions. The other two brands did not have any such comments. The following quotes give a good example of the damaging effect of having too many interactive features on a web site:

"*I found it too detailed; and there were far too many choices in terms of site options per page*". (Case no.25)

"*...there are too many options which can create boredom*" (Case no.33)

As mentioned in the summary section, it was not possible to test the overall model simultaneously. If the sample sizes were sufficient, further analysis of the data with Structural Equation Modelling (SEM) would have been possible. SEM is a multivariate technique for studying causal models that involve multiple constructs with multiple observation items. This technique has been used in a wide range of fields of study due to its ability to provide a straightforward method of dealing with multiple relationships simultaneously and to assess these relationships comprehensively as confirmatory analysis (Hair *et al.* 1995). Several studies investigating consumer related constructs in the Internet environment utilised SEM; i.e. consumer acceptance of products in electronic markets (Liang and Huang 1998); comparison of web and print media (Winzar and Ho 1998); attitudinal predictors of Internet shopping (Balabanis and Vassileiou 1999); measuring the flow construct in online environments (Novak *et al.* 1999). The original conceptual framework developed in this study can be represented as a path diagram because it implies causal relationships between constructs. However, this type of analysis requires very large sample sizes in order to be meaningful. As a general rule of thumb, 100 - 200 participants, or 10 participants per estimated parameter

is recommended (Hair et al. 1995; Tabachnick and Fidell 2001), which makes its use not possible for this study. As a future research direction, it is recommended to replicate this study with a higher number of participants and use structural equation modelling to test all relationships simultaneously within the overall model.

## 6.8 RELIABILITY

Reliability refers to measurement precisions, in terms of the degree to which scores are free from errors of measurement (Pedhazur and Schmelkin 1991). Reliability is a necessary but not a sufficient condition for validity. In other words, a measure cannot be valid if it is not reliable. However, reliability alone does not demonstrate validity. Therefore, the reliability coefficients for each measure in this study will be examined first, as a first step towards validity. A further consideration of validity is discussed in the next section.

The two generally accepted methods to determine reliability within single testing occasions, such as this experimental study, are item-to-total correlations and Cronbach's alpha (Cronbach 1951; Pedhazur and Schmelkin 1991; Dillon *et al.* 1990). The three sub-samples were merged into an overall sample of 78 respondents. The internal consistency of each scale used in the questionnaires was explored through calculating Cronbach's alpha values for each scale and item-to-total correlations for each item in the scales. The results are reported in Table 6-32. Original scale $\alpha$'s are also given for comparison purposes.

**Table 6-32 Reliability and Internal Consistency Analyses of Scales**

| SCALE | ITEMS AND CORRESPONDING ITEM-TO-TOTAL CORRELATIONS | | α | ORIGINAL SCALE α |
|---|---|---|---|---|
| Pre-test brand personality (excitement dimension) | 1.Daring | .71 | .91 | .95 |
| | 2.Trendy | .78 | | |
| | 3.Exciting | .82 | | |
| | 4.Spirited | .78 | | |
| | 5.Cool | .81 | | |
| | 6.Young | .64 | | |
| | 7.Imaginative | .81 | | |
| | 8.Unique | .58 | | |
| | 9.Up-to-date | .77 | | |
| | 10.Independent | .69 | | |
| | 11.Contemporary | .69 | | |
| Pre-test involvement | 1.Important---Unimportant | .74 | .90 | .91 |
| | 2.Boring---Interesting | .76 | | |
| | 3.Relevant---Irrelevant | .81 | | |
| | 4.Exciting---Unexciting | .67 | | |
| | 5.Means nothing to me---Means a lot to me | .77 | | |
| | 6.Appealing---Unappealing | .78 | | |
| | 7.Fascinating---Mundane | .65 | | |
| | 8.Worthless---Valuable | .72 | | |
| | 9.Involving---Uninvolving | .62 | | |
| | 10.Not needed---Needed | .73 | | |
| Pre-test brand attitude | 1.Good---Bad | .97 | .97 | .96 |
| | 2.Unfavourable---Favourable | .98 | | |
| | 3.Negative---Positive | .96 | | |
| Interest in cars | 1.I have a great interest in cars. | .87 | .86 | .86 |
| | 2.Cars are fascinating. | .82 | | |
| | 3.I have a compulsive need to know more about cars. | .81 | | |
| | 4.I'm crazy about cars. | .81 | | |
| | 5.I like car races. | .54 | | |
| | 6.I like to engage in conversation about cars. | .79 | | |
| Attitude-toward-the-website ($A_{ws}$) | 1.I like the web site that I saw. | .96 | .94 | .93 |
| | 2.I think it is a good web site. | .93 | | |
| | 3.I think it is a nice web site. | .95 | | |
| Perceived control | 1.Controlling---Controlled | .90 | .86 | .77 |
| | 2.Influential---Influenced | .81 | | |
| | 3.Dominant---Submissive | .85 | | |
| | 4.Autonomous---Guided | .81 | | |

| SCALE | ITEMS AND CORRESPONDING ITEM-TO-TOTAL CORRELATIONS | | α | ORIGINAL SCALE α |
|---|---|---|---|---|
| Perceived interactivity | 1.While I was on the site, I was always aware where I was.<br>2.While I was on the site, I always knew where I was going.<br>3.While I was on the site, I was always able to go where I thought I was going.<br>4.The hyper-linked images and texts tell me exactly what to expect.<br>5.The visual layout was like a roadmap during my exploration of the site.<br>6.When I clicked on hyper-linked images or texts, I felt good about the instantaneous display of information.<br>7.While I was on the site, I could quickly jump from one page to another.<br>8.I felt I did not get much useful information simply because it had too much information.<br>9.I was delighted to be able to choose which link and when to click.<br>10.I was pleased to see the option of expressing my feelings and opinions on the spot through e-mail or feedback form. | .65<br>.73<br>.72<br>.78<br>.69<br>.68<br>.53<br>.37<br>.74<br>.39 | .83 | .77 |
| Usability | 1.I find the site easy to learn to operate.<br>2.My interaction with the site is clear and understandable.<br>3.I find the site easy to navigate.<br>4.I find the site easy to use.<br>5.The site has an attractive appearance.<br>6.The design is appropriate to the type of site.<br>7.The site conveys a sense of competency.<br>8.The site creates a positive experience for me. | .83<br>.81<br>.89<br>.89<br>.71<br>.77<br>.83<br>.85 | .93 | .88 |
| Information value | 1.The site provides accurate information.<br>2.The site provides believable information.<br>3.The site provides timely information.<br>4.The site provides relevant information.<br>5.The site provides easy to understand information.<br>6.The site provides information at the right level of detail.<br>7.The site presents the information in an appropriate format. | .76<br>.69<br>.79<br>.85<br>.83<br>.87<br>.82 | .91 | .89 |
| Entertainment value | 1.The site is clever and entertaining.<br>2.The site is imaginative.<br>3.The site is exciting. | .91<br>.89<br>.93 | .90 | Not reported |
| Relational value | 1.The site has a good reputation.<br>2.It feels safe to complete transactions.<br>3.My personal information feels secure.<br>4.The site creates a sense of personalisation.<br>5.The site conveys a sense of community.<br>6.The site makes it easy to communicate with the organisation.<br>7.I feel confident that goods /services will be delivered as promised. | .65<br>.82<br>.72<br>.77<br>.73<br>.75<br>.77 | .87 | .81 |
| Total Perceived Value | Composite scale adding the items for the value facets of usability, information, entertainment and relational value (item-total correlations ranged from .50 to .82) | | .96 | N/A |

| SCALE | ITEMS AND CORRESPONDING ITEM-TO-TOTAL CORRELATIONS | | α | ORIGINAL SCALE α |
|---|---|---|---|---|
| Post-test involvement | 1.Important---Unimportant | .78 | .90 | .91 |
| | 2.Boring---Interesting | .80 | | |
| | 3.Relevant---Irrelevant | .67 | | |
| | 4.Exciting---Unexciting | .74 | | |
| | 5.Means nothing to me---Means a lot to me | .77 | | |
| | 6.Appealing---Unappealing | .70 | | |
| | 7.Fascinating---Mundane | .72 | | |
| | 8.Worthless---Valuable | .76 | | |
| | 9.Involving---Uninvolving | .71 | | |
| | 10.Not needed---Needed | .63 | | |
| Post-test brand personality (excitement dimension) | 1.Daring | .82 | .95 | .95 |
| | 2.Trendy | .87 | | |
| | 3.Exciting | .84 | | |
| | 4.Spirited | .85 | | |
| | 5.Cool | .87 | | |
| | 6.Young | .79 | | |
| | 7.Imaginative | .88 | | |
| | 8.Unique | .74 | | |
| | 9.Up-to-date | .87 | | |
| | 10.Independent | .71 | | |
| | 11.Contemporary | .82 | | |
| Post-test brand attitude | 1.Good---Bad | .96 | .97 | .96 |
| | 2.Unfavourable---Favourable | .98 | | |
| | 3.Negative---Positive | .97 | | |

All item-to-total correlations surpassed .30, which has been suggested as an appropriate item-to-total criterion (Henryson 1971). The reliability coefficients for all scales used in this study ranged from .83 to .97. Even the lowest reliability coefficient of .83 (for perceived interactivity scale) was still significantly higher than the recommended lower limit of .70 (Nunnally 1978; Pedhazur and Schmelkin 1991). Furthermore, all the alphas were similar to or higher than the alphas reported by the creators of the original scales. Hence, it can be stated with confidence that all scales used in this study are highly consistent and reliable.

## 6.9 VALIDITY

Two types of validity were distinguished and discussed in literature within the context of research design: internal and external validity (Churchill 1995; Pedhazur and Schmelkin 1991). Other types of validity, such as content and construct validity refer to

the measurement procedures and inferences drawn from data (Pedhazur and Schmelkin 1991). This section will discuss both the design and measurement related validity issues.

### 6.9.1 Internal validity

Internal validity refers to the validity of the claims that the phenomenon observed is in fact due to the independent variables manipulated by the researcher rather than due to extraneous variables (Pedhazur and Schmelkin 1991). Hence, control and randomisation in an experiment play a central role in maximising internal validity. The choice of experimental design in this study made it more internally valid than a non-experimental design such as an online survey. The independent variable (interactive features) was manipulated; the implementation procedures were held constant; relevant extraneous variables were controlled for either directly or statistically; and finally, the subjects were randomly assigned to different treatment groups. It was acknowledged in the previous chapter that the decision to use real brand web sites somewhat limited the independent variable manipulation. However, maximum possible manipulation of the independent variable and control of the confounding variables were still achieved due to 1) the rigorous content analysis conducted for the whole automotive industry prior to brand selection; 2) the similarity of content, layout and design of the web sites; and 3) the use of detailed task sheets guiding the interaction of participants with the web sites in a controlled manner.

Although the type of design, i.e. experimental versus non-experimental, has the most important effect on the internal validity of a study, there are also some other factors which may pose a threat to internal validity. These possible threats and how this study

was designed to overcome them are discussed below:

*History.* Events that take place in the course of a study can affect its outcome. In this study, subjects were intentionally kept unaware of the details of the study and the actual web sites to be used as experimental treatments. Until the actual experiments, subjects only knew that they would be attending a web site browsing activity as part of a doctoral study. Knowing the specific industry or brand prior to the experiments would have jeopardised the internal validity of this study, as subjects could have become curious and more aware of that particular brand and their web site. The history effect would have been very significant in this case, as the brands used in the study were market leader car brands in the UK with very high levels of consumer advertising and marketing communications. All experiments were completed within a short period of time (a week) where there were no significant changes in these brands' marketing communications or any other publicity, and their web sites stayed the same throughout the experiments, which all contribute to the control of the history effects.

*Maturation* refers to changes that experimental subjects undergo with time, such as growing older, gaining experience, becoming tired, etc. In this study, maturation was not a concern, as the experiments were a one-off experience for the subjects, which lasted only about one hour.

*Testing effect.* When people are measured several times on the same variable, learning, memory, sensitisation, etc may affect their performance. In this study, three variables (brand personality, involvement and attitude towards the brand) were measured twice each, as pre-test and post-test, in order to test the effect of interactivity after web site interaction. The testing effect in this case was not very significant, as these variables

were only measured twice, not repeatedly. The pre-test and post-test questions were intentionally placed at the beginning and end of the questionnaires respectively, with several more questions in between, in order to minimise the learning effect.

*Instrumentation.* Aspects of the instruments used may compromise internal validity if differences in outcomes can be attributed to them rather than the experimental treatments. In this study, the use of reliable and valid scales as well as standardised questionnaires with identical design and layout for all treatment groups controlled this effect.

*Selection* refers to the process used in assigning subjects to different treatment groups. This threat is irrelevant in this study, as proper randomisation procedures ensured that all subjects were randomly allocated to three treatment groups.

*Mortality* refers to attrition of people in the course of the study, which is particularly likely to happen if the study is of long duration. This threat was non-existent for this study as none of the volunteers dropped out of the study.

*Diffusion of treatments / Compensatory Rivalry or Resentful Demoralisation.* Knowledge about other treatments in the study may affect people's responses to their own treatment. If they perceive their own treatment group as less desirable than other treatments they may engage in compensatory rivalry or they may become resentful and demoralised. These threats were also irrelevant in this study, as subjects knew nothing about the experiment details and treatment groups until they turned up for the experiments. Different sessions were held for different treatment groups, and the subjects did not find out about other treatments.

To summarise, the design of this study counterbalanced or even completely removed most of the possible threats to internal validity; and hence it can safely be argued that this research design is valid internally.

### 6.9.2 External validity

External validity refers to generalisability of findings to target populations, settings, times and the like (Pedhazur and Schmelkin 1991), which can be enhanced by probability sampling. However, probability sampling is uncommon in experimental research and therefore strict generalising and external validity is rare (Pedhazur and Schmelkin 1991). In correlational studies, such as postal surveys, it is relatively easy and cost effective to apply probability sampling. Once a survey is posted to a randomly selected respondent, usually a satisfactory response rate is achieved as the respondents' required level of co-operation and commitment is minimal. However, in experimental studies, respondents are required to give a great deal of time and effort, which makes recruitment of subjects more difficult. Hence, like most other experimental studies, convenience sampling was used in this study, due to limitations of time, costs and physical resources. The next section describes the possible threats to external validity and how this study was designed to overcome them.

*Treatments-Attributes Interaction* refers to the effects of subjects' personal attributes on treatment groups. In this study, demographic differences were not expected to have any effect on the variables in question. In other words, the aim of the study was to generalise findings across levels of attribute variables, such as gender, education, age, etc.; hence, it was necessary to collect data on these variables. The results of analyses showed that the demographic variables did not interact with the treatments; and hence

results can be generalised to all levels of these attributes.

*Treatments-Settings Interaction.* Settings refer to the environments in which a study is conducted, such as laboratory versus field experiments. This study was conducted in the form of laboratory experiments in the Open University, where each subject browsed a specific real car brand web site following instructions in a task sheet and completed a questionnaire. It is generally accepted that laboratory experiments are artificial settings that do not usually reflect real life situations, and hence limit the generalisability of findings. However, the nature of this study allowed subjects to experience a web site browsing activity not too different from one they would normally conduct in their homes or offices. Therefore, although the computer laboratory setting gave this researcher great experimental control and ensured internal validity, it did not compromise significantly on external validity either. In addition, the use of real brands rather than fictitious ones made the respondents' encounters with the brand online more realistic, which enhanced the external validity of the findings.

*Multiple-Treatment Interference* refers to administering more than one treatment to subjects. This effect is not relevant due to the independent samples design.

*Pre-test Sensitisation* refers to the effects a pre-test may have on the responses of the subjects. The pre-test might cue subjects about the treatment and they might guess what the researcher is expecting (Lewis-Beck 1993). In this study, brand personality, involvement and brand attitude were measured as pre-tests, in order to obtain existing levels of these variables prior to treatment (establish a baseline), and compare these to post-test results after treatment; and hence establish the effects of the online medium on these variables. The possible effect of sensitisation was minimised by careful placement

of pre-test and post-test measures and the use of identical questions to ensure any reactivity was constant from pre-test to post-test. In addition, the subjects were informed about the study before the pre-test in order to hold that knowledge constant from pre-test to post-test.

*Post-test Sensitisation.* When a treatment effect is latent or incomplete, the administration of a post-test may sensitise subjects, leading to responses that the treatment by itself would not have elicited (Pedhazur and Schmelkin 1991). In this study, all the dependent variables, such as perceived control, perceived value and attitude towards the web site were measured after subjects browsed a specific web site, in order to determine magnitudes of differences in these variables among different treatments. The subjects' interaction with the web sites were guided by task sheets, which ensured they experienced all the aspects of the dependent variable and the details relevant to the questions in post-test measures. This made the treatment effect more complete and explicit, and ensured that the responses to post-test measures were indeed the result of the subjects' in-depth interaction with the web sites.

To summarise, it can be concluded that a reasonable degree of external validity was achieved in this study.

### 6.9.3 Validity of measurement procedures and inferences

Validity refers to inferences made based on measurements. These inferences may be more or less valid depending on the purpose, the respondents and the circumstances for which they are made (Pedhazur and Schmelkin 1991). A widely used classification related to validation of measures is a) content, b) criterion and c) construct. Content

refers to some domain of content, e.g. social studies, and specifically in this study, the Internet medium and web site interactivity. Criterion refers to some outcome, e.g. in this study, perceived value and attitude towards the web site. Construct refers to some trait or attribute, e.g. in this study, perceived control, brand personality, attitude towards the brand. The following sections will discuss validation in more detail.

### 6.9.3.1 Content Validity

Content validity refers to the "*adequacy with which the domain of the characteristic is captured by the measure*" (Churchill 1995, p.534). Content validity is also known as "face validity". It can never be guaranteed or proven outright, as it is a matter of judgement. However, it can be improved greatly by conceptually defining the domain of the characteristic being measured, formulating a large collection of items from all the relevant dimensions of the variable (Churchill 1995). As this study used valid measures from literature, the content validity of these measures had already been established by their original authors, who made sure their respective domains were defined appropriately, and a large number of possible scale items were collected prior to refinement.

### 6.9.3.2 Criterion Validity

A criterion is any variable that can be explained or predicted based on information from another variable(s) (Pedhazur and Schmelkin 1991). In other words, a criterion is a dependent variable one wishes to explain or predict from a predictor (independent) variable. In this study, criterion validity was established by showing strong correlations between dependent and independent variables as shown in hypothesis testing section.

The central concept of interactivity in this study was measured with a reliable perceived interactivity scale from literature; and strong correlations and significant regression models were established between dependent and independent variables. In addition to individual linear regression equations, a significant multiple regression model was provided, where independent variables of excitement dimension of brand personality, involvement, perceived control, and expectations, could predict the dependent variable of perceived value.

### 6.9.3.3 Construct Validity

Constructs are theoretical constructions and abstractions aimed at organising and making sense of our environment (Pedhazur and Schmelkin 1991). In this study, 'interactivity' and 'customer empowerment' are examples of constructs, which are theoretical concepts that can be measured not directly but indirectly via their indicators, 'interactive features' / 'perceived interactivity' and 'perceived control' respectively. Construct validation is concerned with validity of inferences about unobserved variables (constructs) on the basis of observed variables (their presumed indicators) (Pedhazur and Schmelkin 1991). Pedhazur and Schmelkin recommend logical analysis, internal-structure analysis, and cross-structure analysis as construct validation approaches.

*Logical analysis*

Definition of the construct, item content, method of measurement and scoring procedures are necessary steps in logical analysis. The most important aspect of logical analysis is to scrutinise the definition of the construct. In this study, interactivity is the central construct. The extensive discussions about the conceptual definitions of this construct in Chapters 3 and 4, and further discussions in operationalising it in Chapter 5

constituted the first steps in the validation of this construct. The other constructs in the conceptual model of this study, i.e. control/empowerment, involvement, expectations, brand personality, perceived values and attitude towards the website were all discussed in detail, both conceptually and operationally, in Chapters 4 and 5. These chapters demonstrated that all extant literature on these concepts was scrutinised, and the selection of operational indicators was justified. Item content refers to the representativeness of a set of items as indicators of a given construct. In this study, existing reliable and valid scales were used to measure different constructs. As part of the construct validity process, it was first checked that these scales were consistent with the definition of the relevant construct while assessing the appropriateness of items of these scales. Measurement procedures refer to general methods of measurement, (e.g. interview, summated rating scales, semantic differential); specific features of such methods, (e.g. directions to respondents, item wording); and conditions of administration, (e.g. the measure is administered together with measures of other constructs) (Pedhazur and Schmelkin 1991). The measurement procedures in this study were scrutinised in the context of the overall aim and setting of the study. Scoring of responses to a measure can also affect the validity of inferences drawn from them. In this study, the scoring procedures as suggested in the original scales were followed. For example, on a 7-point Likert-type scale ranging from 'strongly disagree' to 'strongly agree', a response of 'strongly agree' was scored as 7 and 'strongly disagree' was scored as 1, and the scores for individual items were added up as summated ratings to arrive at a total composite score for the indicator of that construct. This type of scoring is most often used for measures of attitudes and interests (Pedhazur and Schmelkin 1991).

*Internal-structure analysis*

Internal-structure analysis refers to the analytical approaches aimed at assessing the validity of treating a set of indicators as reflecting the same construct (Pedhazur and Schmelkin 1991). It is necessary to demonstrate that the indicators of a construct (e.g. items in a scale) are homogenous, as a set of heterogeneous indicators cannot be measuring the same thing and therefore cannot be combined into a composite index. Factor analysis is the most useful approach for studying the internal structure of a set of indicators. The scales used in this study came from existing literature. Hence, the creators of these scales established the validity of the constructs measured via exploratory and/or confirmatory factor analyses.

*Cross-structure analysis*

Cross-structure analysis refers to studying relations among indicators of two or more constructs. Support of the hypothesis lends support to the validity of the measures of these constructs. Failure to support the hypothesis does not necessarily mean that the measures are not valid. Alternative explanations for the failure to support the hypothesis include questionable theoretical framework and deficiencies in research design or analysis (Pedhazur and Schmelkin 1991). Convergent and discriminant validation are also part of the cross-structure analysis. Convergent validity refers to a convergence among different methods of measurement for the same construct, or a significant correlation between constructs that are theoretically expected to be similar.

Discriminant validity, on the hand, refers to the opposite of convergent validity where different constructs are expected to diverge. The results section showed that the majority of the research hypotheses, both univariate and multivariate, were supported. The lack of support in some hypotheses was due to the divergence in the two different indicators for interactivity. When there were no differences found among treatment

groups for certain variables, it did not necessarily mean that interactivity had no effect on them. When the same hypothesis was tested using perceived interactivity as the indicator, support was found. Although this may pose a threat to convergent validity, it can also be argued that this divergence lends support to discriminant validity if these variables are considered to be separate and independent dimensions of interactivity. Further convergent validity was established through the significant positive correlations between theoretically similar constructs of consumer-brand related attitudes and perceptions, such as brand personality, involvement and attitude towards the brand, as well as web site related constructs, such as expectations, perceived value and attitude towards the web site. Low correlations between unrelated constructs, such as variables relating to web site experience (expectations, perceived control and attitude toward the web site) against consumer-brand variables prior to web site interaction (pre-test brand personality, pre-test involvement and pre-test attitude toward the brand) are evidence of discriminant validity.

### 6.9.4 Summary and Discussion of validity issues

There is a certain amount of trade-off between different types of validity. For instance, internal validity and statistical conclusion validity are maximised by carrying out randomised and rigidly controlled laboratory experiments, but this can decrease both external and construct validity. When theoretical interests are more prevalent than applied ones, the types of validity, in order of importance, are internal, construct, statistical conclusion, and external validity (Cook and Campbell 1979). Hence, in this study, where theoretical implications are of utmost importance, priorities for validity were set accordingly. As discussions above already showed, the internal validity of this study was achieved at a high level, by adhering to a non-compromised, randomised and

highly controlled experimental design. Construct validity was also demonstrated strongly by the extensive discussions about the conceptual and operational definitions of the constructs throughout the thesis, as well as employing reliable and valid measurement scales from extant literature. Statistical conclusion validity was established with the rigid controls in the experimental setting as well as using highly reliable measures and meeting the assumptions of statistical tests. Lastly, an acceptable level of external validity was established due to the following: 1) the use of independent samples in different treatment groups; 2) investigating the subjects' attributes as control variables; 3) comparisons of demographics with the Internet population in the UK; 4) the use of real life brands. These measures all helped ensuring generalisability of findings to target populations and settings, i.e. British consumers interacting with car brand web sites on the Internet.

## 6.10 CHAPTER SUMMARY

The chapter opened with an overview of the quantitative methodology and methods of analyses used in this experimental phase of the study. The data collected from the randomised and controlled experiments as explained in the previous chapter was analysed using SPSS for Windows version 11.5. Hypotheses were tested using both univariate and multivariate methods. Prior to hypothesis testing, the effects of demographic and control variables were checked; and only the 'prior brand attitude' was established as having an effect on some of the dependent variables. Hence, statistical methods were applied, where necessary, to control for this influence. The results of the hypothesis testing section gave the details of how each hypothesis was tested, along with the actual statistical printouts. This section was followed by a summary of all results, which showed that most of the research hypotheses, and parts of

the overall conceptual model were supported by empirical data.

The first important finding was that the two indicators of interactivity as operationalised in this study ('interactive features' versus 'perceived interactivity') did not converge. Each brand web site chosen for this study represented a different categorical level of interactivity in terms of the number of interactive features. However, participants in the experiments did not perceive the web site interactivity in the same way. This showed that 'interactive features', as an indicator of interactivity did not result in differences among treatment groups in the expected direction. On the other hand, 'perceived interactivity' was shown to be a reliable indicator of the interactivity construct, which had significant effects on the other variables in the model. It was also shown that the online medium had a significant effect on the excitement dimension of brand personality and involvement with the brand. In other words, consumers are expected to find brands more exciting and involving when on the Internet than offline. Another important finding was that the excitement dimension of brand personality, involvement, perceived control and expectations could jointly predict the perceived value of a web site. Table 6-33 below gives an excerpted summary of the findings from hypothesis testing.

**Table 6-33 Summary of findings**

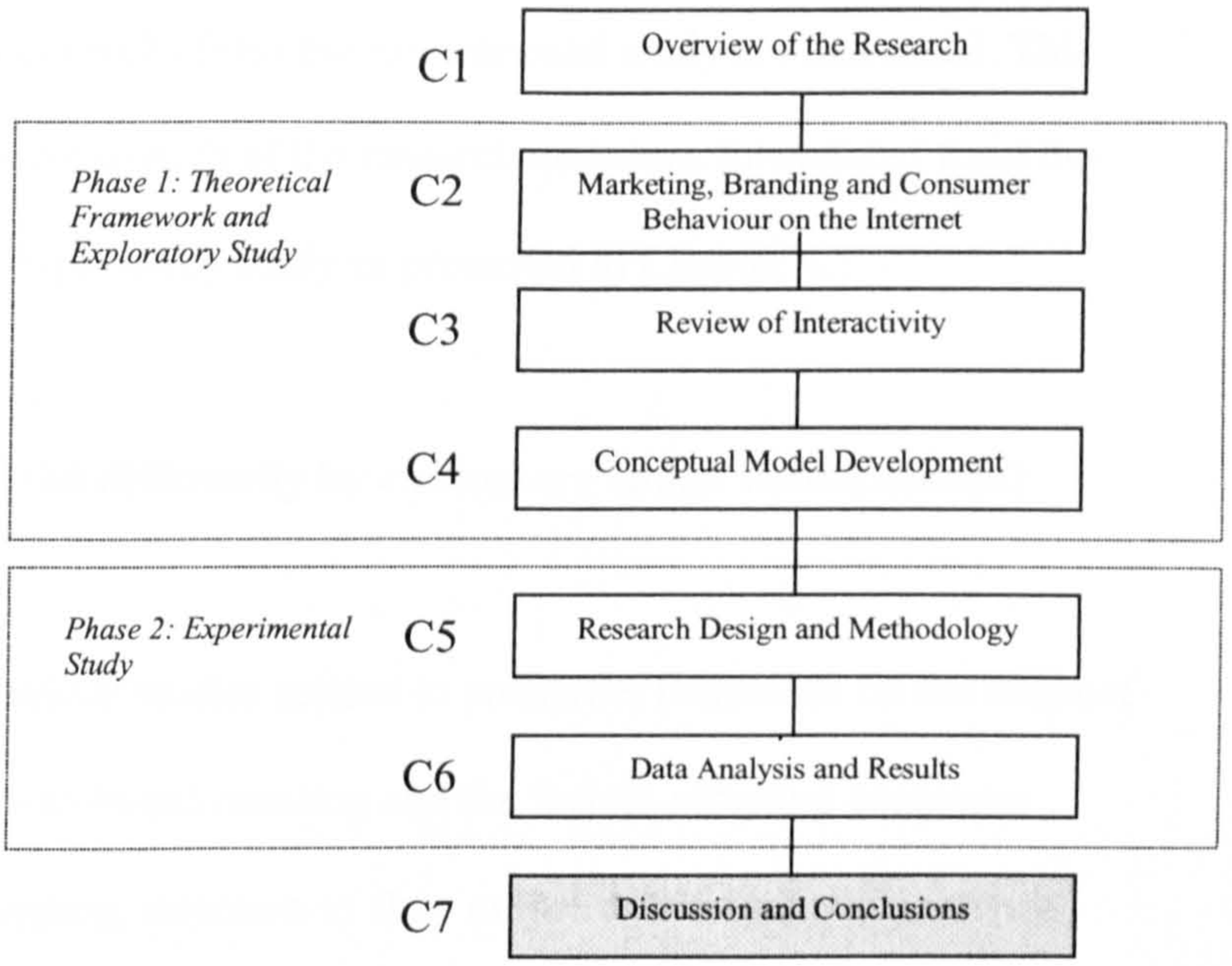
| Hypothesis | Result | Comment |
|---|---|---|
| **1a** : The effect of web site interaction on the excitement dimension of brand personality. | Full support | Consumers perceive brands to be more exciting online than offline. |
| **1b**: The effect of the interactivity of web sites on the excitement dimension of brand personality. | Partial support | Perceived interactivity rather than structural interactivity has a positive effect on consumers' perceptions of the excitement dimension of a brand's personality. |
| **1c**: The effect of the excitement dimension of brand personality on Perceived Value. | Full support | Consumers who find the brand personality exciting after their interaction with the brand's web site are also likely to perceive high value from that web site. |

| | | |
|---|---|---|
| **2a**: The effect of web site interaction on involvement with the brand. | Full support | Consumers become more involved with a brand online than offline. |
| **2b**: The effect of the interactivity of web sites on involvement with the brand. | Partial support | Perceived interactivity rather than interactive features as the independent variable has a positive effect on consumers' involvement with the brand. |
| **2c**: The effect of Involvement with the brand on Perceived Value of the web site. | Full support | Consumers who are more involved with a brand's web site are also likely to perceive high value from that web site. |
| **3a**: The effect of the Interactivity of the web site on Attitude toward the web site. | Partial support | Perceived interactivity rather than interactive features as the independent variable has a positive effect on consumers' attitude toward the web site. |
| **3b**: The effect of Perceived Value of the web site on Attitude toward the web site. | Full support | Consumers who perceive high value from a web site are also likely to have favourable attitudes towards that web site. |
| **4 :** The effect of the interactivity of the web site on Perceived Value of the web site. | Partial support | Perceived interactivity rather than interactive features as the independent variable has a positive effect on consumers' perceived value of the web site. |
| **5a**: The effect of the interactivity of the web site on Perceived Control. | Partial support | Perceived interactivity rather than interactive features as the independent variable has a positive effect on consumers' perceived control of their interaction with the web site. |
| **5b**: The effect of Perceived Control on Perceived Value of the web site. | Full support | Consumers who feel in more control of their interaction with a web site are also likely to perceive high value from that web site. |
| **6a**: The effect of interactivity of the web site on expectations from the brand. | Partial support | Perceived interactivity rather than interactive features as the independent variable has a positive effect on consumers' expectations from the web site. |
| **6b**: The effect of expectations from the brand on Perceived Value of the web site. | Full support | When consumers think their expectations of a brand web site were met or exceeded, they are likely to perceive high value from that web site. |
| **7 :** The effect of Interactivity on the means of the joint distribution of brand personality, involvement, perceived control and expectations. | Partial support | Although no support was found for a multivariate difference among the experimental treatment groups, partial support was found for the effect of structural interactivity on the excitement dimension of brand personality. (Ford brand was perceived to be more exciting after the subjects' interaction with its web site than before this interaction. This finding is consistent with the fact that Ford web site was also perceived to be the most interactive after statistically controlling for the effects of prior brand attitudes.) |
| **8 :** The joint effects of the excitement dimension of brand personality, involvement, perceived control and expectations on perceived value. | Full support | The four independent variables of the excitement dimension of brand personality, involvement, perceived control and expectations could successfully predict the perceived value of a web site. |

The results from these hypotheses establish a good level of support for the conceptual model of consumer-brand interactions on the Internet, where perceived interactivity has a significant effect on consumer response variables of a) the excitement dimension of brand personality, b) consumer involvement with the brand, c) perceived control, d) consumer expectations, e) perceived value of the web site, and f) attitude towards the web site. The results also gave support to the proposed joint effects of the excitement dimension of brand personality, involvement, perceived control and expectations on perceived value, suggesting that these consumer-based perceptions measured after the web site interaction can successfully predict the overall value of the web site as perceived by those consumers.

Further post-hoc analyses section provided qualitative support to quantitative findings from the two open-ended questions included in the questionnaires. It also explained that structural equation modelling could be used to test the overall model simultaneously in a future study. Finally, sections on reliability and validity provided evidence that the measures used in this study were highly reliable and consistent; and that the overall research design and findings were valid, and to some degree, generalisable. The next chapter will provide an extended discussion of these findings and their managerial relevance, along with limitations and future directions of the study.

# CHAPTER 7. DISCUSSION AND CONCLUSIONS




## 7.1 INTRODUCTION

The aim of this chapter is to discuss the implications of the empirical findings from the experimental study within the context of the focused research questions and the conceptual model generated from the exploratory study presented in Chapter 4. Specific contributions, limitations and future directions are also presented.

In section 7.2, empirical findings are discussed in relation to each research question. Section 7.3 presents the detailed theoretical, empirical and managerial contributions of this research. In section 7.4, the study's major limitations are outlined. Finally, section 7.5 indicates important directions for future research.

## 7.2 DISCUSSION OF FINDINGS

In this section, the empirical results from the experimental study are discussed. This discussion provides an answer to each of the research questions formulated from the qualitative findings of the exploratory study as presented in Chapter 4.

### 7.2.1 Are brands perceived differently by consumers online versus offline?

As shown in Chapter 2, previous studies related to consumer behaviour on the Internet generally concentrated on web-based retailing and the factors affecting consumer attitudes toward online shopping, intention to shop online or their satisfaction with online retailers (Avery 1996; Jarvenpaa and Todd 1997; Balabanis and Vassileiou 1999; Chen and Wells 1999; Kaynama and Black 2000; Szymanski and Hise 2000; Wolfinbarger and Gilly 2001; Goldsmith and Goldsmith 2002; Janda *et al.* 2002; Mathwick *et al.* 2002; Shankar *et al.* 2003); and neglected the possible changes to brands and the branding process on the Internet in general, and changes in consumer perceptions of brands and their web sites in specific. Hence, one of the aims of this study was to fill this gap in literature. As explained in Chapter 4, the first phase of this study indicated the possibility that consumers might perceive the excitement dimension of brand personality and their involvement with the brand differently on the Internet. The following quote from one of the respondents of the exploratory interviews summarises the changes to the branding process online, in terms of the brand's personality and image being perceived differently, and the need for adding new values to a brand online.

"*People who are defining brands on the Internet need to be aware that quite often brands have a unique digital occurrence....They have a unique personality when they*

*go on to the Internet... The whole point about doing stuff on the Internet is that you have to do something that people can't do anywhere else. Or you have to do something that people can't do as well anywhere else.*" (Digital Business Manager)

As explained in Chapter 6, the online medium was hypothesised to have a positive influence on both the excitement dimension of brand personality (Hypothesis 1a), and consumers' involvement with the brand (Hypothesis 2a). These variables in turn were hypothesised to have a direct impact on the perceived value of the web site (Hypotheses 1c and 2c). The experimental study found strong empirical support for all four hypotheses. The subjects in the study did rate the brand personality as more exciting after they interacted with the brand's web site, suggesting that due to the inherent qualities of the online medium, consumers are likely to perceive brands to be more exciting on the Internet than offline. They also rated their involvement with the brand higher after they interacted with the brand's web site. The subjects who rated brand personality as more exciting or their involvement higher also perceived higher value from that web site.

To this author's knowledge, there is only one more study, which measured brand personality perceptions online using a scale adapted from Aaker (Muller and Chandon 2003). These researchers concluded that visiting a brand web site would have a positive impact on how consumers evaluate the brand's personality. However, Muller and Chandon's study acknowledged their limitation that they did not measure brand personality prior to web site exposure, as they used control groups instead. This is a major methodological flaw as their samples consisted of self-selected and unmatched groups from an online panel. Another limitation acknowledged in Muller and Chandon's study was that, despite identifying web site design and interactivity as possible factors that might influence brand personality, they did not distinguish between

different types of web sites or explain how they chose the ten brand web sites they used in the study. In a subsequent study, Muller and Chandon (2004) revisited the concept of the impact of a web site visit on brand image using motor vehicle and mobile phone brand web sites. This time, they devised a before-after design without a control group very similar to the present study. Their findings showed that some brand associations, i.e. sporty, innovative, dynamic, increased significantly for the car brand after the web site visit. However, one major limitation of their study was the fact that the brand associations selected for the study were based on thirteen qualitative interviews conducted by the researchers, rather than a reliable and valid scale such as Aaker's brand personality scale.

The present study had the same subjects rating the excitement dimension of brand personality for one brand both before and after their exposure to the brand's web site, acting as their own control. Although this might have a testing or pre-test sensitisation effect as explained in the previous chapter, overall, a reasonable degree of validity and a high level of reliability were established. Hence, this study is unique in providing an empirical and methodological contribution to literature in terms of measuring the excitement dimension of brand personality for real brands on the Internet, as well as providing a theoretical contribution in establishing relationships between interactivity, brand personality and perceived value constructs.

Consumer involvement has also been measured recently with the same scale that was used in this study (Zaichkowsky 1994), within the context of web-based banner advertising effectiveness (Palanisamy and Wong 2003). The authors found support for their hypothesis, which stated that the higher the level of consumer involvement the greater would be the banner ad effectiveness. This is similar to our finding, which established a positive relationship between consumer involvement and perceived value

of a web site. Although Palanisamy and Wong's (2003) dependent variable, i.e. banner ad effectiveness, was different from this study's (perceived value), both studies were similar in terms of using a web-based stimulus (banner ad versus web site), and measuring the effect of consumer involvement on consumer response variables.

The findings discussed above have important implications for brand owners. First, brand owners can add excitement value to their brands and involve consumers with their brands more simply by being online. However, there is also a more indirect implication that a new communications medium like the Internet could create a direct impact on consumer perceptions beyond the control of the brand owner. The key managerial challenge for brand owners is to harness the power of the Internet and capitalise on it to add positive values to the brand. Second, as the respondents of the exploratory interviews suggested, brands can be portrayed as more extravagant, exciting and interesting in online communications. This is very important for brands in creating relationships with consumers online. Using the inherently exciting and involving qualities of the online medium, brands can devise online communications strategies that attract consumers to the brand's web site and create unique benefits that consumers welcome.

### 7.2.2 What is the effect of the interactivity of a brand's web site on key consumer responses to that brand and its web site?

Interactivity was identified as a core construct from the exploratory interviews as well as literature in understanding consumer behaviour and the branding process on the Internet. At the time of the exploratory study, there was very limited empirical research into the effects of interactivity within the Internet context (Fortin 1997; Dholakia and Rego 1998; Ghose and Dou 1998; Ha and James 1998; McMillan 1998; Massey and

Levy 1999). The common theme in this body of early literature was that interactivity within the Internet context would have a positive effect on the way consumers evaluate web sites and their online experiences. Recent research supports these early findings that the interactivity concept is important in understanding consumer behaviour online, and it is strongly associated with consumers' overall satisfaction with their online experience (Chen and Chang 2003).

Based on the exploratory interviews and extant literature at the time of the conceptual model development, the interactivity of a web site was hypothesised to have a positive effect on:

- the excitement dimension of brand personality (Hypothesis 1b),
- involvement with the brand (Hypothesis 2b),
- attitude towards the web site (Hypothesis 3a),
- perceived value of the web site (Hypothesis 4),
- perceived control (Hypothesis 5a), and,
- consumer expectations (Hypothesis 6a).

Full or partial support was found for each of these hypotheses. Before discussing each finding in detail, one important underlying finding, i.e. the divergence of two separate indicators of interactivity, needs to be highlighted. This distinction is discussed in the subsection below.

### 7.2.2.1 Distinction between 'structural' and 'perceived' interactivity

As explained in chapters 3 and 5, the literature identifies 'structural' and 'perceived' interactivity as separate but related constructs (Morrison 1998; McMillan 1999; Wu 1999, 2000; McMillan 2000b; Liu 2002; Liu and Shrum 2002; Yin 2002). Therefore, in this study, it was hypothesised that the structural interactivity, in terms of the interactive features on a web site, as well as perceived interactivity would positively influence consumer response variables.

Following a thorough literature review, interactive features were identified and a content analysis form was devised. In order to choose different web sites representing different levels of interactivity, the web sites of all car brands were content analysed. Vauxhall web site was found to have the highest number (forty-six) of interactive features, as listed in Appendix 2b, and was therefore used as the experimental stimulus for high interactivity, expected to generate positive responses from users. The other two brands chosen were Ford and Volkswagen, representing medium and low levels of interactivity respectively. As explained in Chapter 5 section 5.4.1.6, in addition to the total number of interactive features variable, the three brands to represent three different categorical levels of interactivity were chosen in a way to achieve maximum possible manipulation of the interactivity variable and the control of the confounding variables. For example, the Vauxhall web site not only had the maximum total number of interactive features, but it also had important functionalities such as product customisation, site customisation, online buying, and additional features like traffic information. Ford web site had thirty interactive features, which included product customisation and online buying options. Hence, it represented medium level of web site interactivity. Volkswagen web site had seventeen interactive features, but none of

them included product or site customisation, online buying or any other additional features. Hence, it represented low level of web site interactivity.

In summary, the effect of structural interactivity was measured by the use of different web sites with differing number and combination of interactive features as the experimental stimuli. Perceived interactivity was measured via a scale in the questionnaires as the subjective perception of the respondents. These two indicators of interactivity (structural versus perceived interactivity) did not converge. In fact, the Vauxhall web site was perceived to be the least interactive among the three sites.

Previous researchers investigated this divergence between structural and perceived interactivity. Their findings showed that a significant correlation between structural and perceived interactivity does not always exist; and in some cases 'perceived interactivity' could be a better predictor of consumer response variables than structural interactivity (McMillan 2000a, 2000b; Wu 2000; Yin 2002; Macias 2003). More recently, McMillan *et al.* (2003) confirmed the finding that perceptual variables seem to be stronger predictors of attitude towards the web site than structural variables. Findings from the present study support this view, as all hypotheses were fully supported by data when testing for the effect of perceived interactivity on all other variables in the model. However, when testing for the effect of structural interactivity of a web site, either no support was found or it was not in the expected direction. Perceived interactivity was a better predictor of consumer response variables than structural interactivity in this study.

In exploring the reasons for the divergence of the two indicators of interactivity for the Vauxhall web site, two possible factors emerged. First, it is important to note that the existing attitudes towards the Vauxhall brand (before the participants were exposed to

the web site at all) were generally poorer than to the other two brands, which might have influenced the respondents' perceptions of the web site. Second, having a large number of interactive features and technological functionalities on a web site might make it too complicated both visually and operationally for a user to deal with. Prior experimental studies looking into web commercials and advertising effectiveness found that the effects of interactivity reach a plateau at higher levels, indicating a diminishing returns effect, which could result in negative attitudes towards the web site (Fortin 1997; Bruner II and Kumar 2000; Stevenson *et al.* 2000). A recent study provided further empirical support to this argument, and emphasised the importance of keeping web site design simple in order to avoid information overload (Rosen and Purinton 2004). Findings from this study were consistent with these views as the Vauxhall web site was found to be too complex by respondents and resulted in negative attitudes towards the web site. The following quotes from participants give qualitative support to quantitative findings that the high number of interactive features might have created a detrimental effect for the Vauxhall web site:

> "*Has a quite busy and cluttered feel. A great deal of information on each page.*"
>
> "*Confusing site. Too much information in too many places.*"
>
> "*I found it too detailed and there were far too many choices in terms of site options per page.*"
>
> "*It was user-friendly but appeared cluttered.*"
>
> "*There are too many options which can create boredom.*"

This finding has an important managerial implication as it suggests that although having interactive features on a web site is important in creating a positive consumer response, creating the right balance is more crucial where adding extra 'bells and whistles' to a web site creates welcomed value to the users without making the web site too complex to handle.

### 7.2.2.2 Interactivity and the Excitement Dimension of Brand Personality

The increase in the subjects' rating of the excitement dimension of brand personality was significantly more for the Ford group as opposed to Vauxhall or Volkswagen after web site interaction. However, as explained in the previous section, this was not in the expected direction as the subjects were expected to perceive the Vauxhall web site as more exciting. When the same hypothesis was tested using perceived interactivity as an the independent variable, full empirical support was found. Hence, it is concluded that the perceived interactivity of a web site has a direct impact on how consumers perceive that brand's personality in terms of its excitement qualities. In other words, when consumers find a web site highly interactive, they are also likely to perceive the brand's personality as more exciting after their web site interaction as opposed to before their interaction. This finding is unique and unprecedented as the role of brand personality in online communications has been largely ignored in academic and practitioner research.

### 7.2.2.3 Interactivity and Consumer Involvement

Subjects' ratings of their involvement with the brand did not increase significantly after their web site interaction for any of the three web sites. In other words, no empirical support was found for the effect of structural interactivity on consumers' involvement with the brand. However, similar to the previous hypothesis, full empirical support was found for the positive effect of perceived interactivity on changes in consumers' involvement with the brand after their interaction with the web site. In other words, when consumers find a web site highly interactive, they are also likely to feel more involved with the brand after their web site interaction. It has previously been suggested in literature (McWilliam *et al.* 1997; Evans and King 1999; Liu and Shrum 2002) that

the interactivity of the online medium would lead to increased consumer involvement. One recent study (McMillan *et al.* 2003) confirmed that involvement was strongly related to the perceived interactivity of a web site. The present study provides further support to the argument that as well as the overall interactivity of the online medium, the individual level of interactivity as perceived by consumers on a brand web site would have a direct positive effect on their involvement with that brand.

#### 7.2.2.4 Interactivity and Attitude towards the web site

The subjects' attitude towards the web site scores did not differ significantly between the three web sites, suggesting that the structural interactivity of the web sites did not have an effect on attitudes towards the web sites. However, full empirical support was found for the positive effect of perceived interactivity on attitude towards the web site. In other words, when consumers find a web site highly interactive, they are also likely to have a more favourable attitude towards that web site. This finding supports the scarce previous studies, which found empirical evidence for the positive effect of interactivity on attitude towards the web site (Chen and Wells 1999; Wu 1999; McMillan 2000a; Luna *et al.* 2003; McMillan *et al.* 2003; Peng *et al.* 2004).

#### 7.2.2.5 Interactivity and Perceived Value

In this hypothesis, higher levels of interactivity were expected to result in higher levels of perceived value of a web site. The perceived value construct was operationalised as having four components of usability, information value, entertainment value, and interaction value. Partial support was found for this hypothesis, as the Volkswagen and Ford web sites were perceived by subjects as having better usability than the Vauxhall web site. There were no significant differences between web sites in information value,

entertainment value, interaction value or the total perceived value. The Vauxhall web site being perceived as not very good in usability can be explained by the over-complication and the crowded effect created by having too many interactive features, which makes navigation for the users more difficult.

When the same hypothesis was tested with the perceived interactivity variable, full empirical support was found, suggesting that consumers who perceive a web site to be highly interactive are also likely to perceive high value from that web site. This finding provides empirical support to previous conceptual arguments (McWilliam *et al.* 1997; Breitenbach and Van Doren 1998; Geissler and Zinkhan 1998), which pointed to the relationship between web site interaction and offering value to consumers.

#### 7.2.2.6 Interactivity and Perceived Control

The subjects' perceived control scores did not differ significantly between the three web sites, suggesting that the structural interactivity of the web sites did not have an effect on perceived control. However, full empirical support was found for the positive effect of perceived interactivity on perceived control. In other words, when consumers find a web site highly interactive, they are also likely to feel more in control of their interaction with that web site. This finding provides empirical support to previous conceptual arguments about the effect of interactivity on control and consumer empowerment (Hoffman and Novak 1996; Aldridge *et al.* 1997; Mitchell 1997; Raman 1997; Schultz and Schultz 1998; Van Raaij 1998; Eroglu *et al.* 2001; Kania 2001).

Recently, similar empirical support was provided by Joines *et al.* (2003) in their online consumer survey, when they found that interactive control motivations were positively related to online shopping behaviours. The authors concluded that online consumers

who perceive greater control over what to look at on the Internet are also more likely to use the Internet for shopping; and recommended that web sites should incorporate more interactive components in their design to facilitate this interactive control motivation. These findings give further support to the positive link between interactivity and perceived control.

Another recent study also supported the concept of the positive effect of interactivity on users' perceived control by showing that restrictive navigation cues, i.e. lack of interactive features on a web site such as link buttons and site indexes, would cause reductions in user control (Dailey 2004). Dailey (2004) suggests that future research (in the form of experiments that compare consumers' responses to web sites with similar content but differing navigational atmospheres) should be conducted to test the effect of navigation cues on control. The present study has achieved that, in terms of the research design and the actual findings that support the positive effect of perceived interactivity on perceived control. When consumers feel they are in control of their interaction with a brand's web site, in terms of navigation, feedback and two-way communication possibilities, and the actual outcome of the interaction, e.g. information gathered or shopping done; they are more likely to experience pleasure and satisfaction, which may mean increased intent to return or increased loyalty. It is important for companies to measure their web site perceived interactivity and perceived control, as designing web sites that increase consumers' perceptions of these constructs is likely to lead to satisfied and empowered consumers who come back to the web site.

#### 7.2.2.7 Interactivity and Consumer Expectations

The subjects' expectation scores did not differ significantly between the three web sites, suggesting that the structural interactivity of the web sites did not have an effect on

consumer expectations. However, full empirical support was found for the positive effect of perceived interactivity on consumer expectations. In other words, when consumers find a web site highly interactive, they are also likely to think that their expectations from the web site have been met or exceeded. This finding provides empirical support to previous conceptual arguments about increased consumer expectations due to interactive technologies (Brooks 1998; Nilson 1998). More recently, Sheldon (2004), a new media journalist, also pointed out that as interactive possibilities increase, consumer expectations will be raised, and consumer behaviour will become more complex and intricate. A recent academic study further emphasised the importance of consumer expectations suggesting that consumers transfer their online expectations to form expectations for everyday life, where they demand immediate response, easy access and a sense of control offline as well as online (Yang *et al.* 2003). The fact that the relationship between interactivity and consumer expectations is still discussed conceptually in 2004, gives support to the importance of investigating this concept empirically.

#### 7.2.2.8 The multivariate effect of interactivity on the combination of the four variables of the excitement dimension of brand personality, involvement, perceived control and expectations

Multivariate tests (MANOVA) showed a significant difference among treatment groups in the multivariate combination of the excitement dimension of brand personality, involvement, perceived control and expectations. However, further univariate tests showed that the changes in the excitement dimension of brand personality was the only variable contributing to this multivariate difference. This difference was significantly higher for the Ford group than the Volkswagen group. There were no differences between the Vauxhall and the other groups. This finding suggests that the Ford brand

was perceived to be more exciting after the subjects' interaction with its web site than before this interaction. This finding is consistent with the fact that the Ford web site was also perceived to be the most interactive after statistically controlling for the effects of prior brand attitudes.

In summary, although no support was found for a multivariate difference among the experimental treatment groups, partial support was found for the effect of structural interactivity on the excitement dimension of brand personality. This finding was further supported using the perceived interactivity variable, when a positive relationship between the excitement dimension of brand personality and perceived interactivity was established.

### 7.2.3 How do brands add value to their web sites, and what affect does the concept of 'value' have in consumer-brand interactions on the Internet?

The concept of adding value to brands on the Internet emerged strongly from the exploratory interviews. This concept is best understood with the question "Why would anybody go to brand's web site?", indicating the necessity for brands to offer unique benefits to consumers on their web sites in order to attract them. The idea to 'pull' active and involved consumers to a web site has its theoretical basis within the Internet marketing paradigm that differentiates it from traditional marketing where messages are 'pushed' onto passive audiences. The voluntary nature of the Internet on the consumers' part, and the necessity to develop one-to-one marketing and two-way communication techniques have been discussed in literature (Berthon *et al.* 1996; McWilliam *et al.* 1997; Barwise and Hammond 1998; Geissler and Zinkhan 1998; Chaffey 2000; Rowley 2004a). More specifically, the concept of creating value to both brands and consumers via the web site has also been conceptually discussed in literature (Rayport and Sviokla

1994; Aldridge *et al.* 1997; McWilliam *et al.* 1997; Walsh and Godfrey 2000; Stewart and Pavlou 2002; Rowley 2004a). However, empirical studies into the value of web sites are rarer (Jarvenpaa and Todd 1997; Breitenbach and Van Doren 1998; Geissler and Zinkhan 1998). A body of literature that identified, implicitly or explicitly, different ways of adding value on a web site has already been discussed in Chapter 2. Most recent literature in online branding also points to the relationship between interactivity and value in the branding process. Stuart and Jones (2004) state that interactivity and customisation offer the ability to 'co-brand' with consumers, where brands become reliant upon developing unique and personalised customer experiences rather than merely attempting to reinforce existing brand values.

In the present study, the importance of adding value on web sites was emphasised based on exploratory interviews and extant literature. As the conceptual model and the experimental study were based on consumer perceptions, the value concept was operationalised as 'perceived value' from the consumers' perspective. This construct was operationalised into four distinct components of usability, information value, entertainment value and interaction value based on literature, as discussed in detail in Chapter 5. In summary, brand owners can add value to their web sites by making the web site more interactive and easy to use; and by offering informative and entertaining content and functionalities that consumers welcome.

In answer to the second part of the research question relating to the role of value in consumer-brand interactions on the Internet, the relationships between value and interactivity and the other consumer response variables were investigated. First, the positive effect of interactivity on perceived value was hypothesised (Hypothesis 4), as consumers were expected to perceive more value from web sites with higher levels of interactivity. This finding has already been discussed in section 7.2.2.5 above. Second,

the other consumer response variables in the model, i.e. attitude towards the web site (Hypothesis 3b), perceived control (Hypothesis 5b), and expectations (Hypothesis 6b), were expected to be related to the perceived value of the web site. It was also hypothesised to find a positive joint effect of the excitement dimension of brand personality, involvement, perceived control and expectations on perceived value (Hypothesis 8). Each hypothesis is discussed below.

### 7.2.3.1 Perceived value and attitude towards the web site

Full empirical support was found for this hypothesis, suggesting that consumers who perceive high value from a web site are also likely to have favourable attitudes towards that web site. Attitude towards the web site is an important variable frequently used in Internet related empirical research usually to predict intention to visit a web site or intention to buy from a web site (Balabanis and Vassileiou 1999; Supphellen and Nysveen 2001; Fiore and Jin 2003; Teo *et al.* 2003; Peng *et al.* 2004). Although the consequences of this variable, i.e. future intentions of consumers, have practical marketing relevance, the antecedents are theoretically important in understanding consumer behaviour online. Consistent with our findings, recent studies (Muller and Chandon 2004; Peng *et al.* 2004) also found that attitude towards the site was improved with the site's informativeness and entertainment value. Although not explicitly stated in these studies, information and entertainment are two of the dimensions of the overall perceived value of a web site as devised in this study. However, these authors failed to take into account the usability and interactional/relational value dimensions. Hence, this present study's finding provides unique empirical support to the role of perceived value of a web site, in addition to the role of interactivity as discussed in section 7.2.2.4, as an antecedent to consumers' developing an attitude to that web site.

### 7.2.3.2 Perceived value and perceived control

Full empirical support was found for this hypothesis, suggesting that consumers who feel in more control of their interaction with a web site are also likely to perceive high value from that web site. Although the relationship between interactivity and control has been pointed out in literature before (Steuer 1992; Shih 1998; Korgaonkar and Wolin 1999; Liu and Shrum 2002; Shankar *et al.* 2003), the consequence of increased perceived control of consumers, resulting in higher perceived value has been neglected in literature. Hence, this finding provides a unique contribution to literature in providing evidence for the argument that an increased perception of control facilitated by interactivity would lead to a better value perception by consumers of that web site.

### 7.2.3.3 Perceived value and expectations

Full empirical support was found for this hypothesis, suggesting that when consumers think their expectations of a brand web site were met or exceeded, they are also likely to perceive high value from that web site. Although the concept of raised consumer expectations on the Internet has been discussed conceptually before (Brooks 1998; Nilson 1998), the role of consumer expectations has generally been neglected in Internet related empirical research. This finding is unique in its contribution to indicating the role of consumers' expectations as an antecedent to the perceived value of a web site.

The only other study that measured consumer expectations within a web-based banner advertisement context (Palanisamy and Wong 2003) found empirical support to their argument that the higher the level of consumer expectations the greater would be the banner ad effectiveness. As explained in section 7.2.1 previously, Palanisamy and Wong (2003) tested the effects of consumer involvement and expectations on banner ad effectiveness. Although their dependent variable (banner ad effectiveness) is different

from the present study's dependent variable (perceived value), both studies support each other in their findings that both consumer involvement and expectations have positive effects on consumer response variables in two similar settings, i.e. banner ads and web sites.

#### 7.2.3.4 The joint effects of the excitement dimension of brand personality, involvement, perceived control and expectations on perceived value

Multivariate tests (Multiple Regression) showed full empirical support for this hypothesis, suggesting that the four independent variables of the excitement dimension of brand personality, involvement, perceived control and expectations could successfully predict the perceived value of a web site. The multiple regression model showed that the four independent variables taken together, rather than in isolation, predict the dependent variable better; and account for 70% of the variation in perceived value (Multiple Adjusted $R^2 = 0.70$); and hence represent a better model fit. This finding provides a strong validation for the conceptual model, where the excitement dimension of brand personality, involvement, perceived control and expectations were formulated as the antecedents to the perceived value of a web site.

In other words, these four consumer-based perceptions measured after the web site interaction can successfully predict the overall value of the web site as perceived by those consumers. This finding is very important managerially, as it suggests that brand owners can create better value for their online customers or users by making their brand personality more exciting online, by involving customers with the brand and the web site, by giving them more control over their interaction with the web site, and finally, by meeting or exceeding customer expectations online. As established by findings from the earlier hypotheses in this study, interactivity has an important effect on these consumer

perceptions, hence, by making clever use of the interactive possibilities offered by the online medium, managers can try to influence the interactivity perceptions of their web sites, which in turn, would have a significant effect on consumer responses to that web site.

### 7.2.4 Summary of findings and conclusions

The concept of interactivity has been the underlying theme throughout this thesis, as it was the core construct in the conceptual model of consumer-brand interactions online. The lack of unified definitions and measures of interactivity in literature was discussed extensively in Chapters 3 and 5. Following a thorough review, it was decided to include two separate indicators of interactivity in this study. Although a convergence between these two indicators was expected, it was not entirely unexpected to find it did not happen, as previous literature points out that a significant correlation between structural and perceived interactivity does not always exist (McMillan 2000a, 2000b; Wu 2000; Yin 2002). Accordingly, the findings from this study suggested that the structural interactivity of a web site did not necessarily correctly predict how consumers would perceive that interactivity. In this study, the web site with the highest level of structural interactivity was perceived as having the lowest. The web site with a medium level of interactivity was perceived as being the most interactive, after controlling for the biasing effects of prior brand attitudes. Quotes from respondents showed that the web site with the highest number of interactive features was perceived as being over complicated. This dilemma of the diminishing returns effect was pointed out in literature (Fortin 1997; Bruner II and Kumar 2000; Stevenson *et al.* 2000; Rosen and Purinton 2004). Similarly, this study supported the view that having too many interactive features could have a detrimental effect on consumers' perceptions and

attitudes, and that 'perceived interactivity' could be a better predictor of consumer response variables than structural interactivity .

Another important implication that emerged from data was that the inherent qualities of the Internet medium itself had a direct influence of how exciting consumers find a brand and how involved they feel with it online. There was strong empirical support to suggest that consumers are likely to find a brand more exciting online than offline and they get more involved with the brand after they interact with its web site. This finding is very important theoretically, as it indicates an unprecedented influence of a communications medium on consumer perceptions. It provides empirical evidence for the extensive conceptual arguments in literature as presented in Chapter 2, regarding the paradigm shift that the Internet initiates. If brands can influence consumer perceptions to such a degree by simply being online, then brand owners should exercise great caution in their online strategies, as they are in uncharted territory with less control on their brands and a balance of power generally shifting towards the consumer.

Overall, the empirical data from the experiments using three car brand web sites as stimuli found strong support for the conceptual model developed in the first phase of this study, using the perceived interactivity variable as the indicator of web site interactivity. This model tested for a positive effect of perceived interactivity on consumer response variables of the excitement dimension of brand personality, consumers' involvement with the brand, consumers' perceived control of their interaction with the brand's web site, their expectations from that web site, the perceived value of the web site and their attitudes towards that web site. Full support was found for the positive effect of perceived interactivity on these consumer response variables. In other words, consumers who find a brand's web site highly interactive are also likely to find that brand as more exciting and involving online; and they are likely

to feel more in control of their interaction with the web site and that their expectations have been met or exceeded. As a result, they are likely to perceive high value from that web site and develop a more favourable attitude towards the web site. These findings are important as they help fill a gap in academic literature in understanding the role of interactivity in consumer behaviour online; and in practice, helping managers better understand consumers' interactions with their web sites, and develop online branding strategies utilising the interactivity of the online medium and Internet technologies to better effect.

## 7.3 THEORETICAL, EMPIRICAL, METHODOLOGICAL AND MANAGERIAL CONTRIBUTIONS OF THIS RESEARCH

An outline of the theoretical, empirical, methodological and managerial contributions of this research was given in the first chapter. Details of each contribution are discussed below.

- **Development and validation of an original model of consumer-brand interactions on the Internet, grounded in a qualitative exploratory study as well as extant literature:**

Chapter 4 provided the details of the conceptual model development based on exploratory interviews analysed under the grounded theory methodology guidelines, and supported by literature. This first phase resulted in an original model of consumer-brand interactions on the Internet, proposing a positive influence of interactivity on the dependent consumer-based variables of the excitement dimension of brand personality, involvement, perceived control and expectations; which in turn would predict the perceived value of the web site and consumers' attitude towards that web site. The

second phase of the study tested this conceptual model with controlled, laboratory experiments; and found full empirical support for the model for the independent variable of perceived interactivity.

- **Integrating knowledge from a variety of disciplines, including marketing, branding, Internet marketing, computer-mediated communications and consumer behaviour:**

Due to the complex nature of the constructs included in the conceptual model, a multi-disciplinary approach was devised in investigating different streams of literature including marketing, branding, Internet marketing, computer-mediated communications and consumer behaviour, in order to define these constructs conceptually and operationally. In particular, regarding the interactivity construct, an extensive literature review from diverse fields was conducted due to the complex and multi-disciplinary nature of this concept.

- **Helps fill a gap in understanding consumer perceptions and attitudes online:**

As explained in the previous sections in this chapter, this study helped fill a gap in understanding consumer perceptions and attitudes online. This thesis contributes to literature by building on limited research on interactivity and consumer perceptions of and attitude to web sites. It provided empirical support to conceptual arguments in literature about the relationships between interactivity and involvement, perceived control, expectations and perceived value. It supported other limited empirical research into consumer attitudes online. It also provided unique findings into the role of brand-specific variables, such as the excitement dimension of brand personality, which have been neglected in previous literature. This thesis is the first to examine the role of brand

personality in consumers' interaction with brand web sites. Existing empirical studies into consumer behaviour on the Internet generally concentrate on the role of web site characteristics and /or other demographic variables on outcomes such as intention to buy or intention to revisit the web site. There is very little research into brands and related brand specific variables, such as brand personality, involvement with the brand, or attitude towards the brand within the Internet context.

- **Conceptual clarification of the interactivity construct:**

As presented in Chapter 3, an exhaustive literature review was carried out regarding the concept of interactivity, integrating various literature streams from communications, journalism, marketing and advertising. Due to the complexity of this construct and the lack of a consensus on the conceptual definition of it in literature, a unified and synthesised conceptual definition of interactivity for the Internet context was proposed. This Internet context-specific definition brought together ideas from various literature streams, and captured the essence of this multitrait concept.

- **Operational definition and clarification of the interactivity construct:**

As presented in Chapter 5, an extensive literature review was conducted to define the interactivity construct operationally, and develop measures of it for the second phase of the study. These efforts resulted in the operationalisation of the interactivity construct with two separate indicators of structural and perceived interactivity. Further literature review identified a comprehensive list of interactive features on a web site to measure the structural interactivity, and a valid and reliable scale to measure perceived interactivity from a consumer perspective.

- **The application of grounded theory methodology in the field of marketing, online marketing and consumer behaviour:**

Grounded theory methodology is a well established and respected research methodology, first presented by sociologists Barney Glaser and Anselm Strauss in their 1967 book, *The Discovery of Grounded Theory* (Glaser and Strauss 1967), and since then, traditionally applied in research areas such as social psychology, cognitive science, health psychology, clinical psychology and educational psychology (Pidgeon 1996). Grounded theory is underused in marketing (Gummesson 2003), and almost totally ignored in the field of online marketing and branding.[23] As online marketing is still a relatively new, emerging area of research, grounded theory methodology is particularly suitable in developing new conceptual models grounded in empirical data as well as literature. The first phase of this study has made appropriate use of the grounded theory methodology in systematically collecting, coding, analysing, and synthesising qualitative data to develop an original conceptual model of consumer-brand interactions on the Internet.

- **Provides original empirical data in an under-researched industry sector, namely cars:**

The UK automotive brand web sites were chosen as the setting for this study. This research context has been largely overlooked in academic research although cars are the third largest growing industry on the Internet. This industry sector is generally under-researched in academic literature. Empirical studies within the context of the automotive

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[23] There is a very limited amount of research that applied grounded theory methods to the online environment, such as O'Keefe *et al.* (1998), Detlor (2001), Golicic *et al.* (2002), and Janda *et al.* (2002).

industry are limited to cognitive resonance regarding the car purchase (Bell 1967), consumers' image of themselves and their cars (Birdwell 1968; Evans 1968; Heath and Scott 1998), car brand managers' perspectives into their responsibilities (Veloutsou 2002), and the consumer decision process in new automobile purchases (Punj and Brookes 2002). The use of the automotive industry as a research context is particularly neglected in online marketing and branding. This researcher has come across only three studies using the automotive sector within the Internet context. Two of these (Klein and Ford 2002; Ratchford *et al.* 2003) looked into consumer search for automobiles and concentrated on the economics of information search variables, rather than consumer perceptions and attitudes. The other study was also related to consumer information search, but differed from the previous two in including the consumer involvement construct (Yoon and Kim 2001). Yoon and Kim's study concluded that the Internet affected the purchase decision of those consumers who were highly involved with automobiles, and that the Internet was viewed as a medium that provided fast access to new product information regarding automobiles.

Hence, the study presented in this thesis is unique in providing original empirical data into consumer response variables within the under-researched industry sector of car web sites in the investigation of consumer-brand interactions online.

- **Synthesis of a large number of interactive features dispersed through various streams of literature, which arrived at a comprehensive content analysis instrument to measure the structural interactivity of a web site:**

This contribution has theoretical, empirical and managerial relevance. First, the comprehensive literature review established the theoretical relevance of structural interactivity in understanding this complex construct. Second, an exhaustive academic

and practitioner literature search for possible interactive features on web sites arrived at a comprehensive list of interactive features, which helped operationalise the structural interactivity variable empirically. The practical application of this list to the automotive industry in the form of a content analysis form provides an important managerial tool in the objective assessment of web sites.

- **Validation of the 'perceived interactivity' construct**

Empirical results established that 'perceived interactivity' could predict online consumer behaviour better than structural interactivity. This contributes to the scarce empirical evidence pointing to the multidimensional nature of the interactivity construct, and the validity of the 'perceived interactivity' construct.

- **Validation of existing scales from literature:**

As explained in Chapter 5, an extensive literature search allowed the use of reliable and valid scales for each of the quantitative variables in the operational model. Findings from this study provided further validation for these scales, in terms of consistency and reliability as presented in Chapter 6.

- **The use of real brands in experimental research:**

As an applied contribution, the second phase of the study illustrated the potential for the Internet and real brand web sites to be used in consumer behaviour experimentation. The successful use of real car brand web sites as experimental stimuli opens a new avenue of research possibilities, especially for assessing real-life consumer variables,

such as perceived brand personality or brand attitudes, which are difficult to assess in fictitious situations.

- **Established the role of interactivity in practice:**

This study helps practitioners understand the relative importance of interactivity in predicting consumer perceptions and attitudes online. It provides an explicit and extensive list of interactive features, along with real brand examples, which practitioners can use to design more effective and attractive web sites. Practitioners can also use the perceived interactivity scale validated in this study to measure their consumers' perception of the interactivity of their brand's web site.

- **Established the role of value in practice:**

This thesis contributes to marketing practice by linking interactivity and practical web site design issues to attitudinal outcomes that are important to managers. These attitudinal outcomes include perceptions of brand personality, attitudes toward the brand and web site, and perceived value of the web site to the consumer. Value was measured in this study in terms of web site usability, informational value, entertainment value and relational value. By understanding the direct link between interactivity, design characteristics and consumers' perceptions of value from that web site, managers can improve the way they can add value to the brand via the web site.

## 7.4 LIMITATIONS OF THE PRESENT RESEARCH

As with all studies, this study has several limitations that should be acknowledged. First, the voluntary nature of recruiting participants for the experiments does not afford the same kind of generalisability that probability sampling does. However, this is not a major concern as external validity, i.e. generalisability, has a lower priority in theoretical research than internal validity and construct validity, which have previously been shown to be strong for this study.

The second limitation is related to the demographic qualities of the sample. The demographic data shows that the volunteers for the experiments, who were a combination of Open University staff and post-graduate research students, had more Internet experience and Internet access than average British consumers, due to the nature of their working environment. Although the sample currently under-represents novice users of the Internet, this is acceptable because as the Internet becomes more mainstream and all users become more experienced, the sample anticipates the direction in which the general population is moving. Gallagher *et al.* (2001) even suggest deliberately sampling from a population of experienced early adopters rather than novice members when studying issues in the context of the diffusion of an innovation such as the Internet. The participants of this study also over-represented the graduate and post-graduate population in this country. However, Internet users in the general UK population also represent higher education levels than the general population. Hence, the sample of this study better represents Internet users in the UK than a random sample from a general population.

Third, laboratory settings as opposed to field experiments have the potential to distort the levels of variables and may not generate typical consumer responses in a real life setting. This effect is not very strong in computer-laboratory experiments as the setting is not very different from a consumer browsing a web site at home or in the office. Furthermore, the controlled setting of the laboratory experiments and the random allocation of subjects to treatment conditions assured that the differences across groups were attributable to the treatment conditions (i.e. manipulation of the level of interactivity), rather than individual differences.

Fourth, real brands were used as the experimental stimuli to represent different levels of interactivity. Each brand web site had a different general look, in terms of layout, colours, graphics, design, and content. However, as shown in Chapter 5 in more detail, the confounding effect of these variations were controlled for due to several factors, i.e. the information intensiveness of the automotive sector, similar layout and menu items in all brands' web pages, and the use of task sheets, which guided the participants in a specific manner to experience the different levels of interactivity. The use of real brands was also one of the strengths of the study, as it enhanced the construct validity of consumer-related perceptions and attitudes, as well as the generalisability of the research.

## 7.5 DIRECTIONS FOR FUTURE RESEARCH

The first phase of the study operationalised the construct of interactivity with two separate indicators of structural and perceived interactivity. The structural interactivity was assessed by the interactive features on a web site. Following a thorough academic and practitioner literature review, forty-six possible interactive features were identified. However, although this list was exhaustive at the time of the content analysis of web

sites, due to the transient and evolving nature of Internet technologies, future research might need to update the list incorporating new developments in interactive features.

Findings from the experimental study validated the positive effect of perceived interactivity on consumer perceptions and attitudes online. However, the two indicators of interactivity did not converge. Hypotheses relating to the effect of structural interactivity on consumer response variables had either no support or partial support. Future research needs to investigate the reasons for this divergence.

Due to the time and resource constraints of this study, three brand web sites from a single industry sector were administered as experimental treatments. Including more web sites to represent a continuum of interactivity within the research design and replicating the study using a different industry can further reinforce the validation of the conceptual model, and therefore is a rich area for future research.

The purchase of a car requires high involvement from consumers, as it is the second highest value purchase item following a house. Future research should address this issue by replicating the study in different product categories and industries. For example, the effect of interactivity can be assessed for low involvement product categories, such as fast-moving consumer goods, to test whether the original findings regarding consumer perceptions and attitudes would hold for inherently less involving products.

Another possibility for future research includes replicating the study with more participants in order to apply structural equation modelling techniques to test the overall conceptual model simultaneously.

## REFERENCES


Aaker, D.A. (1991). *Managing Brand Equity: Capitalizing on the Value of a Brand Name*. New York: The Free Press.

Aaker, D.A. (1996). *Building Strong Brands*. New York: The Free Press.

Aaker, J.L. (1997). Dimensions of Brand Personality. *Journal of Marketing Research,* **34** (August), 347-356.

Abela, A.V. and Sacconaghi Jr, A.M. (1997). Value exchange: The secret of building customer relationships online. *McKinsey Quarterly,* (2), 216-219.

Ainscough, T.L. and Luckett, M.G. (1996). The Internet for the rest of us: marketing on the World Wide Web. *Journal of Consumer Marketing,* **13** (2), 36-47.

Alba, J., Lynch, J., Weitz, B., Janiszewski, C., Lutz, R., Sawyer, A. and Wood, S. (1997). Interactive Home Shopping: Consumer, Retail, and Manufacturer Incentives to Participate in Electronic Marketplaces. *Journal of Marketing,* **61** (July), 38-53.

Aldridge, A., Forcht, K. and Pierson, J. (1997). Get linked or get lost: marketing strategy for the Internet. *Internet Research:Electronic Networking Applications and Policy,* **7** (3), 161-169.

American Marketing Association (1960). *Marketing Definitions: A Glossary of Marketing Terms*. Chicago, Il: American Marketing Association.

Angelides, M.C. (1997). Implementing the Internet for Business: A Global Marketing Opportunity. *International Journal of Information Management,* **17** (6), 405-419.

Armstrong, A. and Hagel, J. (1996). The Real Value of On-line Communities. *Harvard Business Review,* (May-June), 134-141.

Athiyaman, A. (2002). Internet users' intention to purchase air travel online: an empirical investigation. *Marketing Intelligence & Planning,* **20** (4), 234-242.

Avery, R.J. (1996). Determinants of search for non-durable goods: an empirical assessment of the economics of information theory. *The Journal of Consumer Affairs,* **30** (2), 390-406.

Bakos, J.Y. (1997). Reducing Buyer Search Costs: Implications for Electronic Marketplaces. *Management Science,* **43** (12), 1676-1692.

Balabanis, G. and Vassileiou, S. (1999). Some Attitudinal Predictors of Home-Shopping through the Internet. *Journal of Marketing Management,* **15** 361-385.

Barnes, S.J. and Vidgen, R.T. (2000). WebQual: An Exploration of Web Site Quality. *In: The Eight European Conference on Information Systems, Vienna July 3-5.*

Barnes, S.J. and Vidgen, R.T. (2001a). Assessing the quality of auction web sites. *In: Proceedings of the Hawaii International Conference on Systems Sciences, Maui, Hawaii.*

Barnes, S.J. and Vidgen, R.T. (2001b). An Evaluation of Cyber-Bookshops: The WebQual Method. *International Journal of Electronic Commerce,* **6** (1), 11-30.

Barnes, S.J. and Vidgen, R.T. (2001c). *An Integrative Approach to the Assessment of E-Commerce Quality* [online working paper], University of Bath. Available from: http://www.webqual.co.uk/papers/webqualbookshop.pdf. [Accessed 15 February 2002]

Barwise, P. (1997). Editorial: Brands in a digital world. *The Journal of Brand Management,* **4** (4), 220-223.

Barwise, P. and Hammond, K. (1998). *Media*. London: Phoenix.

Bauer, C. and Scharl, A. (2000). Quantitative evaluation of Web site content and structure. *Internet Research: Electronic Networking Applications and Policy,* **10** (1), 31-43.

Bearden, W.O., Netemeyer, R.G. and Mobley, M.F. (1993). *Handbook of Marketing Scales. Multi-Item Measures for Marketing and Consumer Behaviour Research.* Newbury Park: Sage Publications.

Bell, G.D. (1967). The automobile buyer after the purchase. *Journal of Marketing,* **31** (3), 12-16.

Berelson, B. (1952). *Content analysis in communication research.* Glencoe, Ill.: Free Press.

Berners-Lee, T., Cailliau, R., Luotonen, A., Nielsen, H.F. and Secret, A. (1994). The World-Wide Web. *Communications of the ACM,* **37** (8), 76-82.

Berthon, P., Pitt, L.F. and Watson, R.T. (1996). The World Wide Web as an Advertising Medium: Towards an Understanding of Conversion Efficiency. *Journal of Advertising Research,* **36** (1), 43-54.

Bhandari, D. (1998). *Value of Internet Presence Sites from a Consumer Perspective and its Implications for the Firm.* Thesis (PhD). The City University of New York, Business School, New York.

Bhatnagar, A. and Ghose, S. (2004). A latent class segmentation analysis of e-shoppers. *Journal of Business Research,* **57** (7), 758-767.

Bhatt, G. (2004). Bringing virtual reality for commercial Web sites. *International Journal of Human-Computer Studies,* **60** (1), 1-16.

Bird, M. and Hammersley, M. (1996) *MA in Education.* Milton Keynes, pp. 23.

Birdwell, A.E. (1968). A study of the influence of image congruence on consumer choice. *Journal of Business,* **41** (1), 76-88.

Blakeman, K. (1997). *Business Information on the Internet.* 2nd ed. Caversham: RBA Information Services.

Blattberg, R.C. and Deighton, J. (1991). Interactive Marketing: Exploiting the Age of Addressability. *Sloan Management Review,* **Fall** 5-14.

Boniface, D.R. (1995). *Experiment Design and Statistical Methods for Behavioural and Social Research.* London: Chapman & Hall.

Box, G.E.P. and Cox, D.R. (1964). An analysis of transformations (with discussion). *Journal of the Royal Statistical Society,* **Series B** (26), 211-246.

Brand Strategy (2002). Building Customer Value through the Internet. *Brand Strategy,* **April 2002** (158), 37.

Brännback, M. (1997). Is the Internet Changing the Dominant Logic of Marketing? *European Management Journal,* **15** (6), 698-707.

Breitenbach, C.S. and Van Doren, D.C. (1998). Value-added marketing in the digital domain: enhancing the utility of the Internet. *Journal of Consumer Marketing,* **15** (6), 558-575.

Brooks, K. (1998). *New Marketing in a New World* [online magazine], ClickZ Network. Available from: http://www.searchz.com/clickz/071598.shtml [Accessed: 1 April 1999].

Bruner II, G., C. and Hensel, P.J. (1996). *Marketing Scales Handbook. A Compilation of Multi-Item Measures.* Chicago, IL: American Marketing Association.

Bruner II, G.C. and Kumar, A. (2000). Web Commercials and Advertising Hierarchy-of-Effects. *Journal of Advertising Research,* **40** (1/2), 35-42.

Bunger, M.D. (2001). *Car Buyers' Paths to Purchase.* Cambridge, Mass.: Forrester Research.

Burke, R.R. (2002). Technology and the customer interface: what consumers want in the physical and virtual store. *Journal of the Academy of Marketing Science,* **30** (4), 411-432.

Bush, V.D. and Gilbert, F.W. (2002). The Web as a medium: an exploratory comparison of Internet users versus newspaper readers. *Journal of Marketing Theory and Practice,* (Winter), 1-10.

Cairncross, F. (1998). *The Death of Distance: How the Communications Revolution will Change Our Lives*. London: Orion Business Books.
Cap Gemini Ernst & Young (2001). *The Third Annual Cars Online Survey* [online report], Cap Gemini Ernst & Young. Available from: http://www.cgey.com/news/2001/1004cars.shtml. [Accessed 18 October 2001]
Caragata, W. (1994). Information overload. *Maclean's,* **107** (38), 60.
Catalano, F. (1999). *Pixels and Brick.* [online article] ClickZ Network. Available from: http://www.searchz.com/Articles/0528992.shtml [Accessed 28 May 1999].
Chaffey, D. (2000). Achieving Internet Marketing Success. *The Marketing Review,* **1** (1), 35-59.
Chaffey, D. and Edgar, M. (2000). Measuring online service quality. *Journal of Targeting, Analysis and Measurement for Marketing,* **8** (4), 363-378.
Chaffey, D., Mayer, R., Johnston, K. and Ellis-Chadwick, F. (2000). *Internet Marketing: Strategy, Implementation and Practice*. Harlow, Essex, UK: Financial Times/Prentice Hall.
Charmaz, K. (1995). Grounded Theory. *In*: Smith, J. A., Harré, R. and Langenhove, L. V. (Eds.) *Rethinking Methods in Psychology.* London: SAGE, pp. 27-49.
Chatterjee, A., Jauchius, M.E., Kaas, H.-W. and Satpathy, A. (2002). Revving up auto branding. *The McKinsey Quarterly,* (1), 134-143.
Chattopadhyay, A. and Basu, K. (1990). Humor in Advertising: The Moderating Role of Prior Brand Evaluation. *Journal of Marketing Research,* **27** (November), 466-476.
Chen, Q. and Wells, W.D. (1999). Attitude toward the Site. *Journal of Advertising Research,* **39** (5), 27-37.
Chen, S.-J. and Chang, T.-Z. (2003). A descriptive model of online shopping process: some empirical results. *International Journal of Service Industry Management,* **14** (5), 556-569.
Cheskin Research (1999). *eCommerce Trust Study* [online report], Cheskin Research and Studio Archetype/Sapient. Available from: http://www.studioarchetype.com/cheskin/assets/images/etrust.pdf. [Accessed 6 September 1999
Childers, T.L., Carr, C.L., Peck, J. and Carson, S. (2001). Hedonic and utilitarian motivations for online retail shopping behavior. *Journal of Retailing,* **77** 511-535.
Christodoulides, G. and de Chernatony, L. (2004). Dimensionalising on- and offline brands' composite equity. *Journal of Product and Brand Management,* **13** (3), 168-179.
Christopher, M. (1996). From brand values to customer value. *Journal of Marketing Practice: Applied Marketing Science,* **2** (1), 55-66.
Churchill, G.A.J. (1995). *Marketing Research. Methodological Foundations*. 6th ed. Fort Worth: The Dryden Press.
CIA (2003). *The World Factbook* [online report], CIA. Available from: http://www.odci.gov/cia/publications/factbook/rankorder/2153rank.html. [Accessed 14 August 2003]
Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. 2nd ed. Hillsdale, NJ: Lawrence Erlbaum Associates.
Computer Weekly (1998). Nearly half of UK firms are at sea over the Net. *Computer Weekly,*8 October, pp. 4.
ComputerWire (2001). Personalization & CRM: A dream ticket for Web Marketers? *Software Futures,*December 2001, pp. 19-27.
Constantinides, E. (2004). Influencing the online consumer's behaviour: the Web experience. *Internet Research: Electronic Networking Applications and Policy,* **14** (2), 111-126.

Cook, T.D. and Campbell, D.T. (1979). *Quasi-Experimentation. Design & Analysis Issues for Field Settings*. Chicago: Rand McNally.
Corbin, J. and Strauss, A. (1990). Grounded Theory Research - Procedures, Canons and Evaluative Criteria. *Zeitschrift Fur Soziologie,* **19** (6), 418-427.
Cospirit Research (2001). *Cartrack. European Car Survey of Online Car Shoppers* [online report], NUA Internet Surveys. Available from: http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905357037&rel=true. [Accessed 9 October 2001]
Coviello, N., Milley, R. and Marcolin, B. (2001). Understanding IT-Enabled Interactivity in Contemporary Marketing. *Journal of Interactive Marketing,* **15** (4), 18-33.
Coyle, J.R. and Thorson, E. (2001). The Effects of Progressive Levels of Interactivity and Vividness in Web Marketing Sites. *Journal of Advertising,* **30** (3), 65-77.
Crainer, S. (1995). *The Real Power of Brands: Making Brands Work for Competitive Advantage*. London: Pitman Publishing.
Cringely, R.X., Gau, J. and Segaller, S. (1998a) *Serving the Suits*, Programme 2 of 3 of The Glory of the Geeks, Directed by Segaller, S., Broadcast by Channel 4 Television (UK) on 26 September 1998.
Cringely, R.X., Gau, J. and Segaller, S. (1998b) *Wiring the World*, Programme 3 of 3 of The Glory of the Geeks, Directed by Segaller, S., Broadcast by Channel 4 Television (UK) on 3 October 1998.
Cronbach, L.J. (1951). Coefficient Alpha and the Internal Structure of Tests. *Psychometrika,* **16** (3), 297-334.
Csikszentmihalyi, M. (1975). *Beyond Boredom and Anxiety*. San Francisco, CA: Jossey-Bass.
Cyberdialogue.com (2000). *Online automobile shopping in high gear* [online article], Cyberdialogue. Available from: http://www.cyberdialogue.com/news/releases/2000/04-13-ic-autos.html. [Accessed 9 October 2001]
Czerniawska, F. and Potter, G. (1998). *Business in a Virtual World. Exploiting information for competitive advantage*. London: MacMillan Business.
Dabholkar, P.A. (1996). Consumer evaluations of new technology-based self-service options: an investigation of alternative models. *International Journal of Research in Marketing,* **13** (1), 29-51.
Dailey, L. (2004). Navigational web atmospherics: Explaining the influence of restrictive navigation cues. *Journal of Business Research,* **57** (7), 795-803.
Danaher, P.J. and Haddrell, V. (1996). A comparison of question scales used for measuring customer satisfaction. *International Journal of Service Industry Management,* **7** (4), 4-26.
Dancey, C.P. and Reidy, J. (2002). *Statistics Without Maths for Psychology*. 2nd ed. Harlow: Prentice Hall.
Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly,* **13** 319-340.
Davis, F.D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioral impacts. *International Journal of Man-Machine Studies,* **38** 475-487.
Dayal, S., Landesberg, H. and Zeisser, M. (2000). Building digital brands. *The McKinsey Quarterly,* **2000** (2), 42-51.
de Chernatony, L. (1999). Brand Management Through Narrowing the Gap Between Brand Identity and Brand Reputation. *Journal of Marketing Management,* **15** 157-179.
de Chernatony, L. and Dall'Olmo Riley, F. (1997a). An Assessment of the "Atomic Brand Model". *In: Academy of Marketing Conference, Manchester July 1997.* Manchester Metropolitan University, 289-299.

de Chernatony, L. and Dall'Olmo Riley, F. (1997b). The chasm between managers' and consumers' views of brands: the experts' perspectives. *Journal of Strategic Marketing,* **5** (2), 89-104.

de Chernatony, L. and Dall'Olmo Riley, F. (1998). Defining A "Brand": Beyond The Literature With Experts' Interpretations. *Journal of Marketing Management,* **14** 417-443.

de Chernatony, L., Harris, F. and Dall'Olmo Riley, F. (2000). Added value: its nature, roles and sustainability. *European Journal of Marketing,* **34** (1/2), 39-56.

de Chernatony, L. and McDonald, M. (1998). *Creating Powerful Brands in Consumer, Service and Industrial Markets*. 2nd ed. Oxford: Butterworth-Heinemann.

de Kare-Silver, M. (2000). *e-shock 2000. The electronic shopping revolution: strategies for retailers and manufacturers*. 2nd ed. London: MacMillan Business.

Dean, T. (1999). 115 Internet Marketing Techniques. *Web Gold Electronic Newsletter* [online], **2** (42).Available from: http://www.bizpromo.com [Accessed 23 October 1999]

Degeratu, A.M., Rangaswamy, A. and Wu, J. (2000). Consumer choice behavior in online and traditional supermarkets: The effects of brand name, price, and other search attributes. *International Journal of Research in Marketing,* **17** (1), 55-78.

Detlor, B. (2001). The influence of information ecology on e-commerce initiatives. *Internet Research: Electronic Networking Applications and Policy,* **11** (4), 286-295.

Devlin, S.J., Dong, H.K. and Brown, M. (1993). Selecting a scale for measuring quality. *Marketing Research: A Magazine of Management and Applications,* **5** (3), 12-17.

Dholakia, U.M. and Rego, L.L. (1998). What makes commercial Web pages popular? An empirical investigation of Web page effectiveness. *European Journal of Marketing,* **32** (7/8), 724-736.

Dillon, T., Madden, J. and Firtle, N.H. (1990). *Marketing Research in a Marketing Environment*. Boston: Irwin.

Discombe, O. (2002). Creating Added Value to Brands on the Internet. *In:* Evans, K. R. and Scheer, L. K. (Eds.) *AMA Winter Educators' Conference: Marketing Theory and Applications, Austin, Texas February 22-25, 2002*. Chicago, IL: American Marketing Association, 508-509.

Doherty, N., Ellis-Chadwick, F. and Hart, C. (2003). An analysis of the factors affecting the adoption of the Internet in the UK retail sector. *Journal of Business Research,* **56** (11), 887-897.

Donthu, N. and Garcia, A. (1999). The Internet Shopper. *Journal of Advertising Research,* **39** (3), 52-58.

Downes, E.J. and McMillan, S.J. (2000). Defining Interactivity: A Qualitative Identification of Key Dimensions. *New Media and Society,* **2** (2), 157-179.

Doyle, D.P. (1998). *Adding Value to Marketing*. London: Kogan Page.

Dreze, X. and Zufryden, F.S. (1997). Testing Web Site Design and Promotional Content. *Journal of Advertising Research,* **37** (2), 77-91.

Drucker, P.F. (1994). The Theory of the Business. *Harvard Business Review,* (Sept - Oct), 95-104.

Dubin, R. (1978). *Theory Building*. Revised edition. New York: The Free Press.

Duncan, T. and Moriarty, S.E. (1998). A communication-based marketing model for managing relationships. *Journal of Marketing,* **62** (2), 1-14.

Dutta, S. and Segev, A. (1998). Transforming Business in the Marketspace: Results from the 1998 Survey. Working Paper, INSEAD.

Ealey, L. and Troyano-Bermudez, L. (1996). Are automobiles the next commodity? *The McKinsey Quarterly,* **4** 62-75.

Ealey, L.A. and Troyano-Bermudez, L. (2000). The automotive industry: a 30,000-mile checkup. *The McKinsey Quarterly,* **1** 72-79.
Eighmey, J. (1997). Profiling User Responses to Commercial Web Sites. *Journal of Advertising Research,* (May-June), 59-66.
Eighmey, J. and McCord, L. (1998). Adding Value in the Information Age: Uses and Gratifications of Sites on the World Wide Web. *Journal of Business Research,* **41** 187-194.
Ellsworth, J.H. and Ellsworth, M.V. (1995). *Marketing on the Internet.* New York: John Wiley & Sons, Inc.
Engel, J.F., Blackwell, R.D. and Miniard, P.W. (1995). *Consumer Behavior.* 8th ed. Forth Worth: The Dryden Press.
Eroglu, S.A., Machleit, K.A. and Davis, L.M. (2001). Atmospheric qualities of online retailing: A conceptual model and implications. *Journal of Business Research,* **54** (2), 177-184.
Evans, B.K. and Fischer, D.G. (1992). A Hierarchical Model of Participatory Decision-Making, Job Autonomy and Perceived Control. *Human Relations,* **45** (11), 1169-1189.
Evans, F.B. (1968). Ford versus Chevrolet: Park Forest Revisited. *Journal of Business,* **41** (4), 445-459.
Evans, J., Greene, J. and Swift, B. (1979). *Research Design.* Milton Keynes: The Open University.
Evans, J.R. and King, V.E. (1999). Business-to-Business Marketing and the World Wide Web: Planning, Managing, and Assessing Web Sites. *Industrial Marketing Management,* **28** 343-358.
Faul, F. and Erdfelder, E. (1992). GPOWER: A priori, post-hoc and compromise power analyses for MS-DOS [Computer program, Version 2.0] Bonn: FRG: Bonn University, Dep. of Psychology
Fink, D. and Laupase, R. (2000). Perceptions of web site design characteristics: a Malaysian/Australian comparison. *Internet Research: Electronic Networking Applications and Policy,* **10** (1), 44-55.
Fiore, A.M. and Jin, H.-J. (2003). Influence of image interactivity on approach responses towards an online retailer. *Internet Research: Electronic Networking Applications and Policy,* **13** (1), 38-48.
Fishbein, M. and Ajzen, I. (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research.* Reading, Massachusetts: Addison-Wesley.
Fortin, D.R. (1997). *The Impact of Interactivity on Advertising Effectiveness in the New Media.* Thesis (PhD). University of Rhode Island, Business Administration, Kingston, RI.
Gallagher, K., Parsons, J. and Foster, K.D. (2001). A Tale of Two Studies: Replicating "Advertising Effectiveness and Content Evaluation in Print and on the Web". *Journal of Advertising Research,* (July/August), 71-81.
Garbarino, E. and Strahilevitz, M. (2004). Gender differences in the perceived risk of buying online and the effects of receiving a site recommendation. *Journal of Business Research,* **57** (7), 768-775.
Gates, B., Myhrvold, N.S. and Rinearson, P. (1995). *The Road Ahead.* London: Viking.
Geerts, G.L., Waddington, B.A. and Dilley, S.C. (2000). Sophisticated Web Design. *Journal of Accountancy,* **189** (4), 55.
Gehrt, K.C. and Yan, R.-N. (2004). Situational, consumer, and retailer factors affecting Internet, catalogue, and store shopping. *International Journal of Retail & Distribution Management,* **32** (1), 5-18.
Geiger, S. and Martin, S. (1999). Relationship marketing, the internet, and Irish businesses - a handsome threesome? *In:* McLoughlin, D. and Horan, C. (Eds.)

*Proceedings of the 15th Annual IMP Conference, Dublin September 2nd-4th, 1999*. University College Dublin.
Geissler, G.L. (2001). Building customer relationships online: the Web site designers' perspective. *Journal of Consumer Marketing,* **18** (6), 488-502.
Geissler, G.L. and Zinkhan, G.M. (1998). Consumer perceptions of the World Wide Web: An exploratory study using focus group interviews. *Advances in Consumer Research,* **25** (1), 386-392.
Geller, L.K. (1998). The Internet: The ultimate relationship marketing tool. *Direct Marketing,* September, **61** (5), pp. 36-38.
Ghiselli, E.E., Campbell, J.P. and Zedeck, S. (1981). *Measurement Theory for the Behavioral Sciences*. San Francisco: W.H. Freeman and Co.
Ghose, S. and Dou, W. (1998). Interactive Functions and Their Impacts on the Appeal of Internet Presence Sites. *Journal of Advertising Research,* (March-April), 29-43.
Ghosh, S. (1998). Making Business Sense of the Internet. *Harvard Business Review,* (March-April), 126-135.
Gilbert, D.C., Powell-Perry, J. and Widijoso, S. (1999). Approaches by hotels to the use of the Internet as a relationship marketing tool. *Journal of Marketing Practice: Applied Marketing Science,* **5** (1), 21-38.
Glaser, B.G. (1999). The future of grounded theory. *Qualitative Health Research,* **9** (6), 836-845.
Glaser, B.G. and Strauss, A.L. (1967). *The Discovery of Grounded Theory. Strategies for Qualitative Research*. New York: Aldine.
Glazer, R. (1991). Marketing in an information-intensive environment: Strategic implications of knowledge as an asset. *Journal of Marketing,* **55** (4), 1-19.
Goldsmith, R.E. and Goldsmith, E.B. (2002). Buying apparel over the Internet. *Journal of Product & Brand Management,* **11** (2), 89-102.
Golicic, S.L., Davis, D.F., McCarthy, T.M. and Mentzer, J.T. (2002). The impact of e-commerce on supply chain relationships. *International Journal of Physical Distribution & Logistics Management,* **32** (10), 851-871.
Goodson, P., McCormick, D. and Evans, A. (2000). Sex and the Internet: A Survey Instrument to Assess College Students' Behavior and Attitudes. *CyberPsychology & Behavior,* **3** (2), 129-149.
Gordon, W. and Langmaid, R. (1988). *Qualitative Market Research*. Aldershot: Gower Publishing Company Ltd.
Goulding, C. (1999). Consumer research, interpretive paradigms and methodological ambiguities. *European Journal of Marketing,* **33** (9/10), 859-873.
Graham, I., Spinardi, G. and Williams, R. (1996). Electronic Commerce: a taxonomy of the development of electronic trading. Working Paper, University of Edinburgh.
Grewal, D., Iyer, G.R. and Levy, M. (2004). Internet retailing: enablers, limiters and market consequences. *Journal of Business Research,* **57** (7), 703-713.
Griffith, D.A. and Gray, C.C. (2002). The Fallacy of the Playing Field: The Effect of Brand Familiarity and Web Site Vividness on Online Consumer Response. *Journal of Marketing Channels,* **9** (3/4), 87-102.
Griffith, D.A., Krampf, R.F. and Palmer, J.W. (2001). The Role of Interface in Electronic Commerce: Consumer Involvement with Print Versus On-Line Catalogs. *International Journal of Electronic Commerce,* **5** (4), 135-153.
Grigsby, M. (2002). Getting personal. *Marketing Research,* **14** (3), 18-22.
Grossbart, S., Muehling, D.D. and Kangun, N. (1986). Verbal and Visual References to Competition in Comparative Advertising. *Journal of Advertising,* **15** (1), 10-23.
Gummesson, E. (2003). All research is interpretive! *Journal of Business & Industrial Marketing,* **18** (6/7), 482-492.

Guralnik, D.B. (Ed.) (1982) *Webster's New World Dictionary,* Simon and Schuster, New York.

Ha, L. and James, E.L. (1998a). Interactivity in Business Web Sites: A Content Analysis. *In:* Muehling, D. D. (Ed.) *The Proceedings of the 1998 Conference of the American Academy of Advertising, Pullman, Washington March 1998.* Washington State University, 185-186.

Ha, L. and James, E.L. (1998b). Interactivity Reexamined: A Baseline Analysis of Early Business Web Sites. *Journal of Broadcasting & Electronic Media,* **42** (4), 457-474.

Ha, Y. and Stoel, L. (2004). Internet apparel shopping behaviors: the influence of general innovativeness. *International Journal of Retail & Distribution Management,* **32** (8), 377-385.

Hagel, J.I. and Armstrong, A.G. (1997a). *Net Gain. Expanding Markets through Virtual Communities*. Boston: Harvard Business School Press.

Hagel, J.I. and Armstrong, A.G. (1997b). Net Gain. Expanding markets through virtual communities. *The McKinsey Quarterly,* (1), 140-153.

Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (1995). *Multivariate Data Analysis with Readings*. 4th ed. Englewood Cliffs, NJ: Prentice-Hall.

Hammersley, M. (1996). Chapter 12. The relationship between qualitative and quantitative research: paradigm loyalty versus methodological eclecticism. *In*: Richardson, J. T. E. (Ed.) *Handbook of Qualitative Research Methods for Psychology and the Social Sciences.* Leicester: BPS Books.

Hammond, K., McWilliam, G. and Diaz, A.N. (1997). *Fun and Work on the Web: Differences in Attitudes between Novices and Experienced Users*. [Working Paper], London Business School.

Haubl, G. and Trifts, V. (2000). Consumer Decision Making in Online Shopping Environments: The Effects of Interactive Decision Aids. *Marketing Science,* **19** (1), 4-21.

Havlena, W.J. and Holbrook, M.B. (1986). The Varieties of Consumption Experience: Comparing Two Typologies of Emotion in Consumer Behavior. *Journal of Consumer Research,* **13** (December), 394-404.

Heath, A.P. and Scott, D. (1998). The self-concept and image congruence hypothesis. *European Journal of Marketing,* **32** (11/12), 1110-1123.

Heeter, C. (1989). Implications of New Interactive Technologies for Conceptualizing Communication. *In*: Salvaggio, J. L. and Bryant, J. (Eds.) *Media Use in the Information Age: Emerging Patterns of Adoption and Consumer Use.* Hillsdale, NJ: Lawrence Erlbaum Associates, pp. 217-235.

Henryson, S. (1971). Gathering, analyzing, and using data on test items. *In*: R.L.Thorndike (Ed.) *Educational Measurement.* 2nd. ed. Washington, D.C: American Council on Education, pp. 153.

Herzog, H. (1944). What Do We Really Know about Day-time Serial Listeners? *In*: Lazarsfeld, P. F. and Stanton, F. N. (Eds.) *Radio Research 1942-1943.* New York: Duell, Sloan and Pearce, pp. 3-33.

Ho, J. (1997). Evaluating the World Wide Web: A Global Study of Commercial Sites. *Journal of Computer-Mediated Communication* [online], **3** (1). Available from: http://www.ascusc.org/jcmc/vol3/issue1/ho.html [Accessed 13 April 1999].

Ho, J.K. (1994). *Prosperity in the Information Age. Creating Value with Technology from Mailrooms to Boardrooms*. Wilmette, Illinois: Infotomics.

Hoey, C. (1998). Maximising the effectiveness of Web-based marketing communications. *Marketing Intelligence & Planning,* **16** (1), 31-37.

Hoffman, D.L. and Novak, T.P. (1996). Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations. *Journal of Marketing,* **60** (July), 50-68.

Hoffman, D.L. and Novak, T.P. (1997). A New Marketing Paradigm for Electronic Commerce. *The Information Society,* **13** (1), 43-54.
Hoffman, D.L., Novak, T.P. and Chatterjee, P. (1995). Commercial Scenarios for the Web: Opportunities and Challenges. *Journal of Computer-Mediated Communication* [online], **1** (3). Available from: http://www.ascusc.org/jcmc/vol1/issue3/hoffman.html [Accessed 13 April 1999].
Holland, J. and Baker, S.M. (2001). Customer Participation in Creating Site Brand Loyalty. *Journal of Interactive Marketing,* **15** (4), 34-45.
Holsti, O.R. (1969). *Content Analysis for the Social Sciences and Humanities*. Reading, Massachusetts: Addison-Wesley.
Honegger, K. and Appelbaum, S.H. (1998). The impact of perceived control and desire to be empowered: an analysis of perception and reality. *Managing Service Quality,* **8** (6), 426-438.
Hopkins, C.D., Raymond, M.A. and Mitra, A. (2004). Consumer Responses to Perceived Telepresence in the Online Advertising Environment: The Moderating Role of Involvement. *Marketing Theory,* **4** (1/2), 137-163.
Howell, D.C. (1989). *Fundamental Statistics for the Behavioral Sciences*. 2nd ed. Boston: PWS-Kent Publishing.
Howell, D.C. (2002). *Statistical Methods for Psychology*. 5th ed. Australia: Duxbury.
Hsieh, C.-t. and Lin, B. (1998). Internet commerce for small businesses. *Industrial Management & Data Systems,* **3** 113-119.
Huarng, A.S. and Christopher, D. (2003). Planning an effective Internet retail store. *Marketing Intelligence & Planning,* **21** (4), 230-238.
Huizingh, E.K.R.E. and Hoekstra, J.C. (2003). Why do consumers like websites? *Journal of Targeting, Measurement & Analysis for Marketing,* **11** (4), 350-361.
Hupfer, N.T. and Gardner, D.M. (1971). Differential Involvement with Products and Issues: An Exploratory Study. *In:* Gardner, D. M. (Ed.) *Proceedings of the Association for Consumer Research, Second Conference, College Park, Md.* Association for Consumer Research.
Hurst, S., Schiller, B. and Bowen, D. (1998). *Winning Business Strategies on the Internet*. London: Haymarket Business Publications, Business report.
Iacobucci, D. (1998). Interactive Marketing and the Meganet: Network of Networks. *Journal of Interactive Marketing,* **12** (1), 5-16.
Ilfeld, J.S. and Winer, R.S. (2002). Generating Website Traffic. *Journal of Advertising Research,* **42** (5), 49-61.
Imber, J. and Toffler, B.-A. (2000). *Dictionary of Marketing Terms*. Hauppauge, NY: Barron's.
Interactive Media in Retail Group (2003). *IMRG e-Retail Sales Index Report* [online report], Interactive Media in Retail Group,. Available from: http://www.imrg.org/IMRGindexMay03.pdf. [Accessed 18 August 2003]
Internet Software Consortium (2003). *Internet Domain Survey* [online report], Available from: http://www.isc.org/ds/host-count-history.html. [Accessed 14 August 2003]
Jacoby, J., Johar, G.V. and Morrin, M. (1998). Consumer behavior: A quadrennium. *Annual Review of Psychology,* **49** (1), 319-344.
Jacoby, J., Speller, D.E. and Kohn, C.A. (1974). Brand Choice as a Function of Information Load. *Journal of Marketing Research,* **11** (1), 63-69.
Janda, S., Trocchia, P.J. and Gwinner, K.P. (2002). Consumer perceptions of Internet retail service quality. *International Journal of Service Industry Management,* **13** (5), 412-431.
Jarvenpaa, S.L. and Todd, P.A. (1997). Consumer Reactions to Electronic Shopping on the World Wide Web. *International Journal of Electronic Commerce,* **1** (2), 59-88.

Jensen, J.F. (1998). 'Interactivity' Tracking a New Concept in Media and Communication Studies. *Nordicom Review,* (1).

Jobst, J. (1999). *Five benefits of a successful Internet presence* [online article], josconNetworks, Inc. Available from: http://linz1.net/freep17.html. [Accessed 12 August 1999]

Johnson, G.J. (2002). *The Dimensionality of Interactivity and Its Effects on Key Consumer Variables*. Thesis (PhD). Southern Illinois University, Business School, Carbondale, IL.

Johnson, T.M. and Griffith, D.A. (2002). 5 steps to online success. *Marketing Management,* **11** (5), 34-39.

Johnston, K.M. (2001). Why e-business must evolve beyond market orientation: applying human interaction models to computer-mediated corporate communications. *Internet Research: Electronic Networking Applications and Policy,* **11** (3), 213-225.

Joines, J.L., Scherer, C.W. and Scheufele, D.A. (2003). Exploring motivations for consumer Web use and their implications for e-commerce. *Journal of Consumer Marketing,* **20** (2), 90-108.

Jupiter Media Metrix (2001a). *European surfers flock to car sites* [online article], NUA Internet Surveys. Available from: http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905356708&rel=true. [Accessed 9 October 2001]

Jupiter Media Metrix (2001b). *Third-Party Automotive Sites Dominate Online Traffic but Auto Manufacturers are poised to take control* [online article], Jupiter Media Metrix. Available from: http://www.jmm.com/xp/jmm/press/2001/pr_091701.xml. [Accessed 9 October 2001]

Jupiter Research Center (2000). *Vision Report from Automotive* [online report], Jupiter Research Center. Available from: http://www.jup.com/sps/research/reportoverview.jsp. [Accessed 9 October 2001]

Kalakota, R. and Whinston, A.B. (1996). *Frontiers of Electronic Commerce*. Reading, Massachusetts: Addison-Wesley Publishing Company, Inc.

Kania, D. (2001). *Branding.com : online branding for marketing success*. Chicago: NTC Business Books / American Marketing Association.

Kapferer, J.-N. (1992). *Strategic Brand Management*. 2nd ed. London: Kogan Page.

Kardes, F.R. (1996). In Defense of Experimental Consumer Psychology. *Journal of Consumer Psychology,* **5** (3), 279-296.

Kasanoff, B. (1998). Are You Ready for Mass Customization? *Training,* **35** (5), 70-78.

Kaynama, S.A. and Black, C.I. (2000). A proposal to assess the service quality of online travel agencies: an exploratory study. *Journal of Professional Services Marketing,* **21** (1), 63-88.

Keen, C., Wetzels, M., de Ruyter, K. and Feinberg, R. (2004). E-tailers versus retailers: Which factors determine consumer preferences. *Journal of Business Research,* **57** (7), 685-695.

Kehoe, C. and Pitkow, J. (1999). *GVU's Tenth World Wide Web User Survey* [online report], Graphics Visualization and Usability Center (GVU). Available from: http://www.gvu.gatech.edu/user_surveys/survey-1998-10/tenthreport.html. [Accessed 2000]

Keller, K.L. (1998). *Strategic Brand Management - Building, Measuring, and Managing Brand Equity*. New Jersey: Prentice-Hall, Inc.

Keller, K.L. and Staelin, R. (1987). Effects of Quality and Quantity of Information on Decision Effectiveness. *Journal of Consumer Research,* **14** (2), 200-213.

Kenny, D.A. and Judd, C.M. (1986). Consequences of Violating the Independence Assumption in Analysis of Variance. *Psychological Bulletin,* **99** (3), 422-431.

Keppel, G. and Saufley, W.H. (1980). *Introduction to Design and Analysis. A Student's Handbook.* San Francisco: W.H.Freeman.

Kettanurak, V., Ramamurthy, K. and Haseman, W.D. (2001). User attitude as a mediator of learning performance improvement in an interactive multimedia environment: an empirical investigation of the degree of interactivity and learning styles. *International Journal of Human-Computer Studies,* **54** (4), 541-583.

Kiani, G.R. (1998). Marketing opportunities in the digital world. *Internet Research: Electronic Networking Applications and Policy,* **8** (2), 185-194.

Kiceluk, A. (2003). *Gender Balance for last 8 years* [online OU Intranet report], Open University. Available from: http://intranet.open.ac.uk/EIS/resources/profiles/genbal_cat.html. [Accessed 4th April 2003]

Kierzkowski, A., McQuade, S., Waitman, R. and Zeisser, M. (1996). Marketing to the Digital Consumer. *The McKinsey Quarterly,* (No.3), 5-21.

Kim, C.K., Han, D. and Park, S.-B. (2001). The effect of brand personality and brand identification on brand loyalty: Applying the theory of social identification. *Japanese Psychological Research,* **43** (4), 195-206.

Kim, E.Y. and Kim, Y.-K. (2004). Predicting online purchase intentions for clothing products. *European Journal of Marketing,* **38** (7), 883-897.

Kitchin, R. (1998). *Cyberspace: The World in Wires*. Chichester: John Wiley & Sons Ltd.

Klein, L.R. and Ford, G.T. (2002). Consumer Search for Information in the Digital Age: An Empirical Study of Pre-Purchase Search for Automobiles. *Advances in Consumer Research,* **29** (1), 100-101.

Konecki, K. (1997). Time in the Recruiting Search Process by Headhunting Companies. *In*: Strauss, A. and Corbin, J. (Eds.) *Grounded Theory in Practice.* California: Sage Publications, Inc., pp. 131-145.

Korgaonkar, P.K. and Wolin, L.D. (1999). A multivariate analysis of Web usage. *Journal of Advertising Research,* **39** (2), 53-69.

Korgaonkar, P.K. and Wolin, L.D. (2002). Web usage, advertising, and shopping: relationship patterns. *Internet Research: Electronic Networking Applications and Policy,* **12** (2), 191-204.

Kotler, P., Armstrong, G., Saunders, J. and Wong, V. (1996). *Principles of Marketing.* Hemel Hempstead: Prentice Hall Europe.

Koufaris, M., Kambil, A. and LaBarbera, P.A. (2002). Consumer Behavior in Web-Based Commerce: An Empirical Study. *International Journal of Electronic Commerce,* **6** (2), 115-138.

KPMG (1998). *The Internet: A guide for Business Users* [online report], KPMG Management Consulting. Available from: http://www.kpmg.co.uk/uk/image/internet.pdf. [Accessed 1 December 1998]

Krippendorff, K. (1980). *Content Analysis : An Introduction to Its Methodology.* California: Sage Publications, Inc.

Kuhn, T.S. (1970). *The Structure of Scientific Revolutions*. 2nd ed. Chicago: The University of Chicago Press.

Kvale, S. (1996). *Interviews - An Introduction to Qualitative Research Interviewing.* California: Sage Publications, Inc.

Kwak, H., Fox, R.J. and Zinkhan, G.M. (2002). What products can be successfully promoted and sold via the Internet? *Journal of Advertising Research,* (January/February), 23-38.

Lal, R. and Sarvary, M. (1999). When and how is the Internet likely to decrease price competition? *Marketing Science,* **18** (4), 485-503.

Larson, D. (2002). Building a Brand's Personality From the Customer Up. *Direct Marketing,* **65** (6), pp. 17-21.

Larsson, M. and Lundberg, D. (1998). *The Transparent Market. Management Challenges in the Electronic Age.* London: MacMillan Business.

Lazarsfeld, P.F. (1940). *Radio and the Printed Page.* New York: Duell, Sloan and Pearce.

Lee, H.G. and Clark, T.H. (1996). Impacts of the Electronic Marketplace on Transaction Cost and Market Structure. *International Journal of Electronic Commerce,* **1** (1), 127-149.

Lee, K.S. and Tan, S.J. (2003). E-retailing versus physical retailing: A theoretical model and empirical test of consumer choice. *Journal of Business Research,* **56** (11), 877-885.

Leong, E.K.F., Huang, X. and Stanners, P.-J. (1998). Comparing the Effectiveness of the Web Site with Traditional Media. *Journal of Advertising Research,* **38** (5), 44-51.

Lewis-Beck, M.S. (Ed.) (1993) *Experimental Design and Methods,* Sage Publications, London.

Li, H., Kuo, C. and Russell, M.G. (1999). The impact of perceived channel utilities, shopping orientations, and demographics on the consumer's online buying behaviour. *Journal of Computer-Mediated Communication,* **5** (2).

Li, S.-C.S. (2004). Examining the factors that influence the intentions to adopt internet shopping and cable television shopping in Taiwan. *New Media & Society,* **6** (2), 173-194.

Liang, T.-P. and Huang, J.-S. (1998). An empirical study on consumer acceptance of products in electronic markets: a transaction cost model. *Decision Support Systems,* **24** 29-43.

Lienert, A. (1998). Brand Management at the Big Three. *Management Review,* **87** (5), 53.

Liu, C., Arnett, K.P. and Litecky, C. (2000). Design Quality of Websites for Electronic Commerce: Fortune 1000 Webmasters' Evaluations. *Electronic Markets,* **10** (2), 120-129.

Liu, S.-P., Tucker, D., Koh, C.E. and Kappelman, L. (2003). Standard user interface in e-commerce sites. *Industrial Management & Data Systems,* **103** (8), 600-610.

Liu, Y. (2002). *Interactivity and its implications for consumer behavior.* Thesis (PhD). Rutger University, Newark.

Liu, Y. and Shrum, L.J. (2002). What Is Interactivity and Is It Always Such a Good Thing? Implications of Definition, Person, and Situation for the Influence of Interactivity on Advertising Effectiveness. *Journal of Advertising,* **31** (4), 53-64.

Locke, E.A. (1986). *Generalizing from laboratory to field settings : research findings from industrial-organizational psychology, organizational behavior, and human resource management.* Lexington, MA: Lexington Books.

Lohse, G.L., Bellman, S. and Johnson, E.J. (2000). Consumer buying behavior on the Internet: findings from panel data. *Journal of Interactive Marketing,* **14** (1), 15-29.

Long, M. and McMellon, C. (2004). Exploring the determinants of retail service quality on the Internet. *Journal of Services Marketing,* **18** (1), 78-90.

Lord, R. (1997). Marketing Services. *Revolution,* (October), pp. 61.

Luna, D., Peracchio, L.A. and de Juan, M.D. (2003). Flow in Individual Web Sites: Model Estimation and Cross-Cultural Validation. *Advances in Consumer Research,* **30** (1), 280-281.

Lynn, G.S., Maltz, A.C., Jurkat, P.M. and Hammer, M.D. (1999). New media in marketing redefine competitive advantage: a comparison of small and large firms. *The Journal of Services Marketing,* **13** (1), 9-20.

Macias, W. (2000). *The Effect of Interactivity on Comprehension and Persuasion of Interactive Advertising*. Thesis (PhD). The University of Texas, Graduate School, Austin.

Macias, W. (2003). A Beginning Look at the Effects of Interactivity, Product Involvement and Web Experience on Comprehension: Brand Web Sites as Interactive Advertising. *Journal of Current Issues & Research in Advertising,* **25** (2), 31-44.

Mandel, N. and Johnson, E.J. (2002). When web pages influence choice: effects of visual primes on experts and novices. *Journal of Consumer Research,* **29** (September), 235-245.

Martin, J. (1996). *Cybercorp - the new business revolution*. New York: American Management Association.

Massey, B.L. (2000). Market-based predictors of interactivity at Southeast Asian online newspapers. *Internet Research: Electronic Networking Applications and Policy,* **10** (3), 227-237.

Massey, B.L. and Levy, M.R. (1999). Interactivity, online journalism and English-language Web newspapers in Asia. *Journalism and Mass Communication Quarterly,* **76** (1), 138-151.

Mathwick, C., Malhotra, N.K. and Rigdon, E. (2001). Experiential value: conceptualization, measurement and application in the catalog and Internet shopping environment. *Journal of Retailing,* **77** 39-56.

Mathwick, C., Malhotra, N.K. and Rigdon, E. (2002). The effect of dynamic retail experiences on experiential perceptions of value: an Internet and catalog comparison. *Journal of Retailing,* **78** (1), 51-60.

McGovern, G. (1999). *The Caring Economy: Business Principles in the New Digital Age*. Dublin: Blackhall Publishing.

McKenna, R. (1995). Real-Time Marketing. *Harvard Business Review,* (July-August), 87-95.

McKinney, L.N. (2004). Creating a satisfying internet shopping experience via atmospheric variables. *International Journal of Consumer Studies,* **28** (3), 268-283.

McMillan, S.J. (1998). Who Pays for Content? Funding in Interactive Media. *Journal of Computer-Mediated Communication,* **4** (1).

McMillan, S.J. (1999). Four Models of Cyber-Interactivity: Individual Perceptions of Interactivity in Computer-Mediated Environments. *In: Paper presented at the International Communication Association Annual Conference, San Francisco, CA.*

McMillan, S.J. (2000a). Interactivity is in the eye of the beholder: Function, Perception, Involvement, and Attitude Toward the Web Site. *In:* Shaver, M. A. (Ed.) *The Proceedings of the 2000 Conference of the American Academy of Advertising, East Lansing, MI.* Michigan State University, 71-78.

McMillan, S.J. (2000b). The microscope and the moving target: the challenge of applying content analysis to the World Wide Web. *Journalism & Mass Communication Quarterly,* **77** (1), 80-98.

McMillan, S.J. (2000c). What is Interactivity and What Does It Do? *In: Association of Education in Journalism and Mass Communication 2000 Annual Conference, Phoenix, Arizona.*

McMillan, S.J. and Hwang, J.-S. (2002). Measures of Perceived Interactivity: An Exploration of the Role of Direction of Communication, User Control, and Time in Shaping Perceptions of Interactivity. *Journal of Advertising,* **31** (3), 29-42.

McMillan, S.J., Hwang, J.-S. and Lee, G. (2003). Effects of Structural and Perceptual Factors on Attitudes toward the Website. *Journal of Advertising Research,* **43** (4), 400-409.

McWilliam, G., Hammond, K. and Diaz, A. (1997). Going places in Webtown: A new way of thinking about advertising and the Web. *The Journal of Brand Management,* **4** (4), 261-270.

Mechitov, A.I., Moshkovich, H.M., Underwood, S.H. and Taylor, R.G. (2001). Comparative Analysis of Academic Web Sites. *Education,* **121** (4), 652-662.

Mehrabian, A. and Russell, J. (1974). *An Approach to Environmental Psychology.* Cambridge, MA: The MIT Press.

Mehta, R. and Sivadas, E. (1995). Direct Marketing on the Internet: An Empirical Assessment of Consumer Attitudes. *Journal of Direct Marketing,* **9** (3), 21-32.

Menon, S. and Kahn, B. (2002). Cross-category effects of induced arousal and pleasure on the Internet shopping experience. *Journal of Retailing,* **78** (1), 31-40.

Mercer, D. (1997). *New Marketing Practice. Rules for Success in a Changing World.* London: Penguin Books.

Merrilees, B. and Fry, M.-L. (2002). Corporate Branding: A Framework for E-retailers. *Corporate Reputation Review,* **5** (2/3), 213-225.

Merrilees, B. and Fry, M.-L. (2003). E-trust: the influence of perceived interactivity on e-retailing users. *Marketing Intelligence & Planning,* **21** (2), 123-128.

Miles, M.B. and Huberman, A.M. (1984). *Qualitative Data Analysis. A Sourcebook of New Methods*. Beverly Hills, CA: Sage Publications.

Miles, M.B. and Huberman, A.M. (1994). *Qualitative Data Analysis: an expanded sourcebook.* 2nd ed. California: Sage Publications, Inc.

Misic, M.M. and Johnson, K.L. (1999). Benchmarking: a tool for Web site evaluation and improvement. *Internet Research: Electronic Networking Applications and Policy,* **9** (5), 383-392.

Mitchell, A. (1997). *Brand Strategies in the Information Age : The rise of new marketing*. London: FT Management Report.

Monsuwe, T., Dellaert, B.G.C. and de Ruyter, K. (2004). What drives consumers to shop online? A literature review. *International Journal of Service Industry Management,* **15** (1), 102-121.

Moody, G. (1999). How retailers can survive e-tailing. *Computer Weekly,*17 June, pp. 26-27.

Moore, K. and Andradi, B. (1996). Who will be the winners on the Internet? *The Journal of Brand Management,* **4** (1), pp.47-54.

Morris, M. and Ogan, C. (1996). The Internet as Mass Medium. *Journal of Communication,* **46** (1), 39-50.

Morrison, M.A. (1998). A look at interactivity from a consumer perspective. *In: Developments in Marketing Science, Norfolk, VA 1998.* Academy of Marketing Science, 149-154.

Muller, B. and Chandon, J.-L. (2003). The Impact of Visiting a Brand Website on Brand Personality. *Electronic Markets,* **13** (3), 210-221.

Muller, B. and Chandon, J.-L. (2004). The impact of a World Wide Web site visit on brand image in the motor vehicle and mobile telephone industries. *Journal of Marketing Communications,* **10** (2), 153-166.

Negroponte, N. (1995). *Being Digital.* London: Hodder and Stoughton.

Nel, D., van Niekerk, R., Berthon, J.-P. and Davies, T. (1999). Going with the flow: Web sites and customer involvement. *Internet Research: Electronic Networking Applications and Policy,* **9** (2), 109-116.

Newhagen, J.E., Cordes, J.W. and Levy, M.R. (1995). Nightly@nbc.com: Audience Scope and the Perception of Interactivity in Viewer Mail on the Internet. *Journal of Communication,* **45** (3), 164-175.

Newhagen, J.E. and Rafaeli, S. (1996). Why Communication Researchers Should Study the Internet: A Dialogue. *Journal of Communication,* **46** (1), 4-13.
Ng, H.I., Pan, Y.J. and Wilson, T.D. (1998). Business Use of the World Wide Web: A Report on Further Investigations. *International Journal of Information Management,* **18** (5), 291-314.
Ngai, E.W.T. (2003). Internet marketing research (1987-2000): a literature review and classification. *European Journal of Marketing,* **37** (1/2), 24-49.
Nilson, T.H. (1992). *Value-Added Marketing. Marketing management for superior results*. London: McGraw-Hill.
Nilson, T.H. (1998). *Competitive Branding. Winning in the market place with value-added brands*. Chichester: John Wiley & Sons Ltd.
NOP Research Group (1999). *E-Commerce in Britain to reach £9.5 billion in 2000.* [online article], NOP Research Group. Available from: http://www.nop.co.uk/ [Accessed 22 September 1999].
Novak, T.P., Hoffman, D.L. and Yung, Y.-F. (1999). *Measuring the Flow Construct in Online Environments: A Structural Modeling Approach* [online article], Vanderbilt University. Available from: http://www2000.ogsm.vanderbilt.edu/papers/pdf/Measuring.the.Flow.Construct.(April.1999).pdf. [Accessed 31 January 2000]
Novak, T.P., Hoffman, D.L. and Yung, Y.-F. (2000). Measuring the customer experience in online environments: a structural modeling approach. *Marketing Science,* **19** (1), 22-42.
NUA Internet Surveys (1997). *Information Overload?* [online article], Nua Internet Surveys. Available from: http://www.nua.ie/surveys. [Accessed 1998]
NUA Internet Surveys (1999). *Business Users Face Information Overload* [online article], NUA Internet Surveys. Available from: http://www.nua.ie/surveys. [Accessed 1999]
NUA Internet Surveys (1999), Vol. 4 Nua Ltd.
NUA Internet Surveys (2001). *Managers skeptical about value of web sites* [online article], Nua. Available from: http://www.nua.ie/surveys. [Accessed 20 August 2003]
NUA Internet Surveys (2002). *Web services catching on in Europe* [online article], Nua. Available from: http://www.nua.ie/surveys. [Accessed 20 August 2003]
Nunnally, J.C. (1978). *Psychometric Theory*. 2nd ed. New York: McGraw-Hill.
Office for National Statistics (2002). *2001 e-commerce survey* [online report], Office for National Statistics. Available from: http://www.statistics.gov.uk/pdfdir/ecomm1002.pdf. [Accessed 14 August 2003]
Office for National Statistics (2002). *National Statistics Omnibus Survey*. London.
Office for National Statistics (2003). *Internet access* [online report], Office for National Statistics. Available from: www.statistics.gov.uk/releases. [Accessed 20 April 2004]
O'Keefe, R.M., O'Connor, G. and Kung, H.-J. (1998). Early adopters of the Web as a retail medium: small company winners and losers. *European Journal of Marketing,* **32** (7/8), 629-643.
O'Leary, C., Rao, S. and Perry, C. (2004). Improving customer relationship management through database/Internet marketing: A theory-building action research project. *European Journal of Marketing,* **38** (3/4), 338-354.
Oliver, R.L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research,* **17** 460-469.
Oppenheim, A.N. (1992). *Questionnaire Design, Interviewing and Attitude Measurement*. New edition. London: Pinter Publishers.
Outing, S. (1998). What exactly is interactivity? *Editor & Publisher,* **131** (52), 7-9.

Palanisamy, R. and Wong, S.A. (2003). Impact of Online Consumer Characteristics on Web-Based Banner Advertising Effectiveness. *Global Journal of Flexible Systems Management,* **4** (1/2), 15-25.

Page, C. and Lepkowska-White, E. (2002). Web equity: a framework for building consumer value in online companies. *Journal of Consumer Marketing,* **19** (3), 231-248.

Palmer, J.W. and Griffith, D.A. (1998). An Emerging Model of Web Site Design for Marketing. *Communications of the ACM,* **41** (3), 45-51.

Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing,* **64** (1), 12-40.

Park, C.-H. and Kim, Y.-G. (2003). Identifying key factors affecting consumer purchase behavior in an online shopping context. *International Journal of Retail & Distribution Management,* **31** (1), 16-29.

Parsons, A.G. (2002). Non-functional motives for online shoppers: why we click. *Journal of Consumer Marketing,* **19** (5), 380-392.

Patterson, M.C. (1997). *Doing Business on the World-Wide Web.* USA: Crisp Publications, Inc.

Paul, P. (1996). Marketing on the Internet. *Journal of Consumer Marketing,* **13** (4), 27-39.

Pavlik, J.V. (1996). *New Media Technology: Cultural and Commercial Perspectives.* Boston, MA: Allyn and Bacon.

Pearson, S. (1996). *Building Brands Directly - Creating Business Value from Customer Relationships.* London: MacMillan Press Ltd.

Pedhazur, E.J. and Schmelkin, L.P. (1991). *Measurement, Design, and Analysis. An Integrated Approach.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Peng, K.-F., Fan, Y.-W. and Hsu, T.-A. (2004). Proposing the content perception theory for the online content industry - a structural equation modeling. *Industrial Management & Data Systems,* **104** (6), 469-489.

Peppard, J. and Butler, P. (1998). Consumer Purchasing on the Internet: Processes and Prospects. [Working Paper], Cranfield University, (SWP 11/98), 1-15.

Peppers, D. and Rogers, M. (1993). *The One to One Future.* New York: Currency Doubleday.

Peppers, D. and Rogers, M. (1997). *Enterprise One to One.* New York: Currency Doubleday.

Perry, M. and Bodkin, C. (2000). Content analysis of Fortune 100 company Web sites. *Corporate Communications: An International Journal,* **5** (2), 87-97.

Peterson, R.A., Balasubramanian, S. and Bronnenberg, B.J. (1997). Exploring the implications of the Internet for consumer marketing. *Journal of the Academy of Marketing Science,* **25** (4), 329-346.

Pfenning, A. (2001). Personalization: Delicate Balance. *InternetWeek,* 27/08/2001, (875), pp. 40.

Pidgeon, N. (1996). Grounded theory: theoretical background. *In*: Richardson, J. T. E. (Ed.) *Handbook of Qualitative Research Methods for Psychology and the Social Sciences.* Leicester: The British Psychological Society, pp. 75-85.

Piech, F. (2000). *The transformation of the Automotive Industry* [online article], The Munich Re Management Symposium. Available from: http://www.munichre.com/aktuelles_forum_e/pdf/piech_e_.pdf. [Accessed 24 April 2002]

Plummer, J.T. (1985). How Personality Makes a Difference. *Journal of Advertising Research,* **24** (6), 27-31.

Porter, M.E. (2001). Strategy and the Internet. *Harvard Business Review,* **March** 63-78.

Punj, G. and Brookes, R. (2002). The influence of pre-decisional constraints on information search and consideration set formation in new automobile purchases. *International Journal of Research in Marketing,* **19** 383-400.

Putrevu, S. and Lord, K.R. (2003). Processing Internet Communications: A Motivation, Opportunity and Ability Framework. *Journal of Current Issues & Research in Advertising,* **25** (1), 45-59.

Quelch, J.A. and Klein, L.R. (1996). The Internet and International Marketing. *Sloan Management Review,* (Spring), 60-75.

R.L.Polk & Co. and Jupiter Media Metrix (2001). *Automotive Internet Intelligence Report* [online report], Jupiter Media Metrix. Available from: http://www.jmm.com/xp/jmm/press/2001/pr_072501.xml. [Accessed 9 October 2001]

Rafaeli, S. (1988). Interactivity. From New Media to Communication. *In*: Hawkins, R. P., Weimann, J. M. and Pingree, S. (Eds.) *Advancing Communication Science: Merging Mass and Interpersonal Processes.* Beverly Hills, CA: Sage Publications, pp. 110-135.

Rafaeli, S. and Sudweeks, F. (1997). Networked Interactivity. *Journal of Computer-Mediated Communication* [online], **2** (4).Available from: http://www.ascusc.org/jcmc/vol2/issue4/rafaeli.sudweeks.html [Accessed 03/05/2000].

Raman, N.V. (1997). A Qualitative Investigation of Web-Browsing Behavior. *Advances in Consumer Research,* **24** (1), 511-516.

Ratchford, B.T. (1987). New Insights about the FCB Grid. *Journal of Advertising Research,* **27** (August/September), 24-38.

Ratchford, B.T., Lee, M.-S. and Talukdar, D. (2003). The Impact of the Internet on Information Search for Automobiles. *Journal of Marketing Research,* **40** (2), 193-209.

Rayport, J.F. and Sviokla, J.J. (1994). Managing in the Marketspace. *Harvard Business Review,* **72** (Nov-Dec), 141-150.

Rayport, J.F. and Sviokla, J.J. (1995). Exploiting the Virtual Value Chain. *Harvard Business Review,* **73** (Nov-Dec), 75-85.

Rettie, R. (2001). An exploration of flow during Internet use. *Internet Research: Electronic Networking Applications and Policy,* **11** (2), 103-113.

Riley, J. (1998). On the road to a digital economy. *Computer Weekly,*2 July, pp. 16.

Rogers, E.M. (1986). *Communication Technology: The New Media in Society.* New York: The Free Press.

Rogers, E.M. (1995). *Diffusion of Innovations.* 4th ed. New York: Free Press.

Rohm, A.J. and Swaminathan, V. (2004). A typology of online shoppers based on shopping motivations. *Journal of Business Research,* **57** (7), 748-757.

Rosen, D.E. and Purinton, E. (2004). Website design: Viewing the web as a cognitive landscape. *Journal of Business Research,* **57** (7), 787-794.

Rowley, J. (2002). *E-business: Principles & practice.* Basingstoke: Palgrave.

Rowley, J. (2004a). Just another channel? Marketing communications in e-business. *Marketing Intelligence & Planning,* **22** (1), 24-41.

Rowley, J. (2004b). Online branding: the case of McDonald's. *British Food Journal,* **106** (3), 228-237.

Roy, M.C., Dewit, O. and Aubert, B.A. (2001). The impact of interface usability on trust in Web retailers. *Internet Research: Electronic Networking Applications and Policy,* **11** (5), 388-398.

Rubinstein, H. and Griffiths, C. (2001). Branding matters more on the Internet. *Journal of Brand Management,* **8** (6), 394-404.

Rust, R.T., Inman, J.J., Jia, J. and Zahorik, A. (1999). What You Don't Know About Customer-Perceived Quality: The Role of Customer Expectation Distributions. *Marketing Science,* **18** (1), 77-92.

Rust, R.T. and Lemon, K.N. (2001). E-Service and the Consumer. *International Journal of Electronic Commerce,* **5** (3), 85.

Ruyter, K.d., Wetzels, M. and Kleijnen, M. (2001). Customer adoption of e-service: an experimental study. *International Journal of Service Industry Management,* **12** (2), 184-207.

Sally, T., VanSteenkiste, S., Canobbio, V., Thomas, P. and Vermillion, M. (1999). *Best Practices in Online Apparel Retailing* [online report], Electronic Commerce Research Laboratory. Available from: [Accessed 30 March 2000]

Samuelsen, R. (1998). *The Five Business Models of E-Commerce* [online article], ClickZ Network. http://www.searchz.com/Articles/1223983.shtml 4 January 1999.

Sarkar, M., Butler, B. and Steinfield, C. (1998). Cybermediaries in Electronic Marketspace: Toward Theory Building. *Journal of Business Research,* **41** 215-221.

Schmitt, B. (1999). Experiential Marketing. *Journal of Marketing Management,* **15** 53-67.

Schultz, D.E. and Schultz, H.F. (1998). Transitioning marketing communication into the twenty-first century. *Journal of Marketing Communications,* **4** (1), 9-26.

Scott, J. (1998). Hungry like the web. *Revolution,* (November), pp. 51-55.

Shankar, V., Rangaswamy, A. and Pusateri, M. (1998). The Effects of the Online Medium on Customer Price Sensitivity: A Conceptual Framework and Empirical Analysis. Working Paper, University of Maryland.

Shankar, V., Smith, A.K. and Rangaswamy, A. (2003). Customer satisfaction and loyalty in online and offline environments. *International Journal of Research in Marketing,* **20** (2), 153-175.

Sharma, A. and Sheth, J.N. (2004). Web-based marketing: The coming revolution in marketing thought and strategy. *Journal of Business Research,* **57** (7), 696-702.

Sheaf, N. (2000). How to take a web site and turn it into a unique global brand. *Revolution,*27/09/00, **September,** pp. 49.

Sheldon, N. (2004). Can interactivity match consumer expectations? *New Media Age,*7/8/2004, pp. 17.

Shih, C.-F. (1998). Conceptualizing consumer experiences in cyberspace. *European Journal of Marketing,* **32** (7/8), 655-663.

Simeon, R. (1999). Evaluating domestic and international Web-site strategies. *Internet Research: Electronic Networking Applications and Policy,* **9** (4), 297-308.

Simeon, R. (2001). Evaluating the branding potential of Web sites across borders. *Marketing Intelligence & Planning,* **19** (6), 418-424.

Simonson, I., Carmon, Z., Dhar, R., Drolet, A. and Nowlis, S.M. (2001). Consumer Research: In Search of Identity. *Annual Review of Psychology,* **52** (1), 249-275.

Sivadas, E., Grewal, R. and Kellaris, J. (1998). The Internet as a Micro Marketing Tool: Targeting Consumers through Preferences Revealed in Music Newsgroup Usage. *Journal of Business Research,* **41** (3), 179-186.

Smith, S.M. and Whitlark, D.B. (2001). Men and Women Online: What makes them click? *Marketing Research,* **13** (2), 20.

Solomon, M.R. (2003). *Conquering Consumerspace: Marketing Strategies for a Branded World.* New York: AMACOM.

Spector, P.E. (1986). Perceived Control by Employees: A Meta-Analysis of Studies Concerning Autonomy and Participation at Work. *Human Relations,* **39** (11), 1005-1016.

Spector, P.E. (1993). Research Designs. *In*: Lewis-Beck, M. S. (Ed.) *Experimental Design & Methods.* Vol. 3. London: Sage Publications, pp. 39.
Spreitzer, G.M. (1995). Psychological Empowerment in the Workplace: Dimensions, Measurement, and Validation. *Academy of Management Journal,* **38** (5), 1442-1465.
Spreitzer, G.M. (1996). Social Structural Characteristics of Psychological Empowerment. *Academy of Management Journal,* **39** (2), 483-504.
SPSS Inc. (2002). SPSS 11.5 for Windows Help Files [Computer program, Version 11.5 for Windows] Chicago, IL: SPSS Inc.
Srinivasan, S.S., Anderson, R. and Ponnavolu, K. (2002). Customer loyalty in e-commerce: an exploration of its antecedents and consequences. *Journal of Retailing,* **78** (1), 41-50.
Stafford, T.F., Stafford, M.R. and Schkade, L.L. (2004). Determining Uses and Gratifications for the Internet. *Decision Sciences,* **35** (2), 259-289.
Stern, B.B. (1993). The Firm, the Author, and the Persona: A Literary Model of the Source of Advertising. *Journal of Current Issues & Research in Advertising,* **15** (2), 15-24.
Steuer, J. (1992). Defining Virtual Reality: Dimensions Determining Telepresence. *Journal of Communication,* **42** (4), 73-93.
Stevenson, J.S., Bruner II, G.C. and Kumar, A. (2000). Webpage Background and Viewer Attitudes. *Journal of Advertising Research,* **40** (1/2), 29-34.
Stewart, D.W. and Pavlou, P.A. (2002). From Consumer Response to Active Consumer: Measuring the Effectiveness of Interactive Media. *Journal of the Academy of Marketing Science,* **30** (4), 376-396.
Strader, T.J. and Shaw, M.J. (1999). Consumer cost differences for traditional and Internet markets. *Internet Research: Electronic Networking Applications and Policy,* **9** (2), 82-92.
Strauss, A.L. (1987). *Qualitative Analysis for Social Scientists*. Cambridge: Cambridge University Press.
Strauss, A. and Corbin, J. (Eds.) (1997) *Grounded Theory in Practice,* Sage Publications, Inc., California.
Strauss, A. and Corbin, J. (1998). *Basics of Qualitative Research. Techniques and Procedures for Developing Grounded Theory*. 2nd ed. California: Sage Publications, Inc.
Stroud, D. (1998). *Internet Strategies*. London: MacMillan Business.
Stuart, H. and Jones, C. (2004). Corporate Branding in Marketspace. *Corporate Reputation Review,* **7** (1), 84-93.
Supphellen, M. and Nysveen, H. (2001). Drivers of intention to revisit the websites of well-known companies. *International Journal of Market Research,* **43** (3), 341-352.
Sweeney, J.C. and Soutar, G.N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Retailing,* **77** (2), 203-220.
Szymanski, D.M. and Hise, R.T. (2000). E-satisfaction: an initial examination. *Journal of Retailing,* **76** (3), 309-322.
Tabachnick, B.G. and Fidell, L.S. (2001). *Using Multivariate Statistics*. 4th ed. Boston: Allyn & Bacon.
Tapp, A. and Hughes, T. (2004). New technology and the changing role of marketing. *Marketing Intelligence & Planning,* **22** (3), 284-296.
Taylor, M.B. (1981). Product Involvement and Brand Commitment. *Journal of Advertising Research,* **21** (6), 51-56.
Tellis, G.J. and Golder, P.N. (1996). First to Market, First to Fail? Real Causes of Enduring Market Leadership. *Sloan Management Review,* (Winter), 65-75.

Teo, H.H., Oh, L.B., Liu, C.H. and Wei, K.K. (2003). An empirical study of the effects of interactivity on web user attitude. *International Journal of Human-Computer Studies,* **58** (3), 281-305.
Teo, T.S.H. (2001). Demographic and motivation variables associated with Internet usage activities. *Internet Research: Electronic Networking Applications and Policy,* **11** (2), 125-137.
Teo, H.H., Oh, L.B., Liu, C.H. and Wei, K.K. (2003). An empirical study of the effects of interactivity on web user attitude. *International Journal of Human-Computer Studies,* **58** (3), 281-305.
The Future Unit (1998). *Converging Technologies: Consequences for the new knowledge-driven economy*. London: Department of Trade and Industry, Government report. (3692).
The Society of Motor Manufacturers and Traders (2001). *Registrations of new cars in the UK- by manufacturer* [online report], Available from: http://www.smmt.co.uk/. [Accessed December 2001]
Thelwall, M. (2000). Commercial Web sites: lost in cyberspace? *Internet Research: Electronic Networking Applications and Policy,* **10** (2), 150-159.
Thørbjornsen, H., Supphellen, M., Nysveen, H. and Pedersen, P.E. (2002). Building Brand Relationships Online: A Comparison of Two Interactive Applications. *Journal of Interactive Marketing,* **16** (3), 17-34.
Toffler, A. (1980). *The Third Wave*. USA: William Collins Sons & Co Ltd.
Triplett, T. (1994). Brand personality must be managed or it will assume a life of its own. *Marketing News,*1994///, **28** (10), pp. 9.
Trocchia, P.J. and Janda, S. (2003). How do consumers evaluate Internet retail service quality? *Journal of Services Marketing,* **17** (3), 243-253.
Tudor, J.D. (1997). The new alchemy using droids & agents to treat information overload. *Online,* **21** (6), 50.
Turinas, A. (2000). Digital brands need to find a personality. *Revolution,*17 May 2000, pp. 35.
Van den Poel, D. and Leunis, J. (1999). Consumer acceptance of the Internet as a channel of distribution. *Journal of Business Research,* **45** (3), 249-256.
Van Raaij, W.F. (1991). The Formation and Use of Expectations in Consumer Decision Making. *In*: Robertson, T. S. and Kassajian, H. H. (Eds.) *Handbook of Consumer Behaviour.* Englewood Cliffs, NJ: Prentice-Hall.
Van Raaij, W.F. (1998). Interactive communication: Consumer power and initiative. *Journal of Marketing Communications,* **4** (1), 1-8.
Vaughn, R. (1986). How Advertising Works: A Planning Model Revisited. *Journal of Advertising Research,* **26** (1), 57-66.
Veloutsou, C.A. (2002). Brand managers' expected and perceived responsibilities in the automobile industry. *Journal of Brand Management,* **9** (6), 452-462.
Vividence (2002). *Driving Quality of Experience on Automotive Websites* [online report], Vividence. Available from: http://www.vividence.com/. [Accessed 14 August 2002]
Vrechopoulos, A.P. (2001). *Virtual store atmosphere in Internet retailing: measuring virtual retail store layout effects on consumer buying behaviour.* Thesis (PhD). Brunel University, Information Systems and Computing, London.
Walker, A., Maher, J., Coulthard, M., Goddard, E. and Thomas, M. (2001). *Living in Britain. Results from the 2000/01 General Household Survey.* London: The Stationery Office, Office for National Statistics.
Walsh, J. and Godfrey, S. (2000). The internet: a new era in customer service. *European Management Journal,* **18** (1), 85-92.
Ward, M.R. and Lee, M.J. (2000). Internet shopping, consumer search and product branding. *Journal of Product & Brand Management,* **9** (1), 6-18.

Warner, M. (Ed.) (2002) *Automobile Industry,* Thomson Learning.
Watson, R.T., Akselsen, S. and Pitt, L.F. (1998). Attractors: Building Mountains in the Flat Landscape of the World Wide Web. *California Management Review,* **40** (2), 36-56.
Webster, J., Trevino, L.K. and Ryan, L. (1993). The dimensionality and correlates of flow in human-computer interactions. *Computers in Human Behavior,* **9** 411-426.
Weinfurt, K.P. (1995). Chapter 8. Multivariate Analysis of Variance. *In*: Grimm, L. G. and Yarnold, P. R. (Eds.) *Reading and Understanding Multivariate Statistics.* Washington D.C.: American Psychological Association, pp. 245-276.
White, H. and Daniel, E. (2004). The future of on-line retailing in the UK: learning from experience. *Marketing Intelligence & Planning,* **22** (1), 10-23.
Wilson, R.F. (1998). Five Circles of Relationship Marketing on the Web. *Web Marketing Today* [online], **51** (December).Available from: http://www.wilsonweb.com/wmt4/981201relationship-mktg.htm [Accessed 1 December 1998]
Winzar, H. and Ho, W.P. (1998). Comparing the Effects of Web and Print media on Brand Attitude, Emotional Response and Behavioural Intention. *In: ANZMAC98, Australia.*
Wolfinbarger, M. and Gilly, M.C. (2001). Shopping online for freedom, control, and fun. *California Management Review,* **43** (2), 34-55.
Wood, S.L. (2002). Future fantasies: a social change perspective of retailing in the 21st century. *Journal of Retailing,* **78** (1), 77-83.
World Trade Organisation (2001). *International Trade Statistics 2001* [online report], World Trade Organisation. Available from: http://www.wto.org/english/res_e/statis_e/its2001_e/stats2001_e.pdf. [Accessed 3 May 2002]
Wu, G. (1999). Perceived Interactivity and Attitude Toward Web Sites. *In:* Roberts, M. S. (Ed.) *The Proceedings of the 1999 Conference of the American Academy of Advertising, Gainesville, Florida.* University of Florida, 254-262.
Wu, G. (2000). *The Role of Perceived Interactivity in Interactive Ad Processing.* Thesis (PhD). The University of Texas, Graduate School, Austin.
Yang, X., Ahmed, Z.U., Ghingold, M., Boon, G.S., Mei, T.S. and Hwa, L.L. (2003). Consumer preferences for commercial Web site design: an Asia-Pacific perspective. *Journal of Consumer Marketing,* **20** (1), 10-27.
Yin, J. (2002). *Interactivity of Internet-Based Communications: Impacts on E-Business Consumer Decisions.* Thesis (PhD). Georgia State University, Robinson College of Business, Atlanta, GA.
Yoo, B. and Donthu, N. (2001). Developing a scale to measure the perceived quality of an Internet shopping site (SITEQUAL). *Quarterly Journal of Electronic Commerce,* **2** (1), 31-45.
Yoon, S.-J. and Kim, J.-H. (2001). Is the Internet More Effective Than Traditional Media? Factors Affecting the Choice of Media. *Journal of Advertising Research,* **41** (6), 53-60.
Zaichkowsky, J.L. (1985). Measuring the Involvement Construct. *Journal of Consumer Research,* **12** (December), 341-352.
Zaichkowsky, J.L. (1994). The Personal Involvement Inventory: Reduction, Revision, and Application to Advertising. *Journal of Advertising,* **23** (4), 59-70.
Zeithaml, V.A., Berry, L.L. and Parasuraman, A. (1993). The Nature and Determinants of Customer Expectations of Service. *Journal of the Academy of Marketing Science,* **21** (1), 1-12.
Zinkhan, G.M. (2002). Promoting services via the Internet: new opportunities and challenges. *Journal of Services Marketing,* **16** (5), 412-423.

# APPENDIX 1 – SUPPORTING MATERIAL FOR THE EXPLORATORY STUDY

## Appendix 1a. TOPIC LIST FOR INTERVIEWS

A. BRANDING IN GENERAL
- Defining a brand
- A new definition for branding in this new medium?

B. PARADIGM SHIFTS
- Do you think that the Internet challenges the old paradigms of marketing? If so, what is the new paradigm?
- Do companies need to change their business models and/or brand strategies for this new medium?
- Will the 'virtual business model' affect blue chip / existing brands?
- The major challenges for existing brands to use the Internet as a new media

C. ELECTRONIC COMMERCE
- How do you define e-commerce?
- Attributes of e-commerce

D. THE 'NEW CONSUMER'
- Implications of the 'new consumer' on online branding
- Do consumers follow the classical model of purchasing on the Internet?
- Does the perceived risk by consumers increase online due to lack of human interaction? What's the role of branding in overcoming the perceived risk?

E. PRICES AND THE INTERNET
- Will the Internet level prices because of the ease to find information and compare different brands and prices?
- Will the Internet force the brands to "move down"?

F. WEBSITE DESIGN & STRATEGY
- What levels of management are involved in web site development in your client companies?
- Do companies integrate their Internet strategy with the overall marketing strategy?
- Information overload: Do strong Internet brands offer little but high quality information?
- How do you communicate brand identity online?
- Should the brand identity, image and personality be consistent with other marketing communications media?
- Is it more difficult to communicate the emotional values of a brand online as opposed to traditional media?
- How can companies add value to their brands online?
- How do you envisage the future of Internet branding?

## Appendix 1b. CODES FOR ANALYSIS

### A) Open Coding Stage

The following tables show the 150+ codes identified from the line by line coding of all interview transcripts. All the codes are grouped under six main categories and several subcategories within each category.

### Category 1) Brands and branding in general – Overall code: DB

**Subcategory 1. How would you define a brand?**

| Code name | Explanation | Code |
|---|---|---|
| Association | Brand associations that consumers identify themselves with | DB-ASO |
| Differentiation | Brand as a tool for differentiating from competitors | DB-DIF |
| Gap | Gap between consumers' and manufacturers' / agencies' understanding of brands | DB-GAP |
| Holistic / Gestalt | Brand as a totality of values that cannot be separated | DB-HOL |
| Identity | Brand as identity | DB-ID |
| Perceived Image | Brand as image that exists in consumers' minds | DB-IM |
| Character/ Personality | Brand as personality | DB-PER |
| Price premium | Brands enable companies to charge a price premium | DB-PP |
| Promise | Brand as promise | DB-PRO |
| Reputation / Fame | Brand as reputation / fame which allows instant recognition | DB-REP |
| Shorthand device | Brand as shorthand device | DB-SHD |
| Trust | Brand as trust/ confidence / comfort | DB-TRT |
| Value | Brand as value and benefits | DB-VAL |

**Subcategory 2. Would you change your definition for brands / branding on the Internet?**

| Code name | Explanation | Code |
|---|---|---|
| No | Definition remains same / does not change | DB-DNC |

**Subcategory 3. Identified differences and changes in the 'branding' process**

| Code name | Explanation | Code |
|---|---|---|
| Importance | Brands remain very important on the Internet | DB-BRI |
| Digital vs. traditional | There is a difference between digital and traditional /existing brands | DB-DVE |
| Interactivity / Product Experience | Interactivity / Product Experience are key issues / Web site experience is part of brand identity | DB-IPE |
| New medium | Internet is a new communications medium which is different than traditional media | DB-NCM |
| Value | Brands need to add unique value on the Internet | DB-ADD |

## Category 2) Paradigm Shifts – Overall code: PS

**Subcategory 1. Do you think that the Internet challenges the old paradigms of marketing and branding?**

| Code name | Explanation | Code |
|---|---|---|
| Yes | Agree there is a shift / Internet challenges existing paradigms | PS-ATS |
| No | Don't believe there is a new paradigm | PS-DBP |
| New / small | Internet still very new / small to create a paradigm shift | PS-ISN |
| Interactive TV | Interactive TV is a factor in shifts | PS-ITV |
| Just another channel | Internet is just another channel / medium | PS-JAC |
| Semantic problem | Problem with the word "paradigm" | PS-PWP |

**Subcategory 2. What are the attributes of the new paradigm?**

| Code name | Explanation | Code |
|---|---|---|
| Customisation / One-to-one marketing | Customised / one-to-one marketing as new paradigm | PS-CUS |
| Disintermediation | Disintermediation or creation of new intermediaries | PS-DIS |
| Free stuff | Free things on the Internet has become the norm | PS-FRE |
| Global businesses | Geographical boundaries disappearing | PS-GEO |
| Real-time information | Real-time information / tracking / micro marketing | PS-RTI |
| Reduced costs | Transaction costs are lower on the Internet | PS-TRA |
| Interactivity | Two-way communications / Interactivity | PS-TWO |
| Voluntary activity | Voluntary, deliberate activity / not forced like TV adverts | PS-VOL |

**Subcategory 3. Do companies need to change their business models for this new medium?**

| Code name | Explanation | Code |
|---|---|---|
| Yes | Internet changes business models | PS-BMC |
| Sceptical | Sceptical that virtual business model is new | PS-SCE |

**Subcategory 4. Factors affecting business models**

| Code name | Explanation | Code |
|---|---|---|
| Catalogue model | Catalogue companies are more successful online because they have the experience | PS-CAT |
| Cost savings | Cost savings as a strong reason to change business model | PS-CSA |
| First mover | First mover advantage can be important | PS-FMA |
| Making money | Different ways of making money | PS-MON |
| Purpose-built | Businesses purpose-built for the Internet are more likely to succeed | PS-PBI |
| Stock value | Stock value of virtual businesses is a phenomenon | PS-SVV |

**Subcategory 5. Does the virtual business model worry blue chip companies?**

| Code name | Explanation | Code |
|---|---|---|
| Yes | Virtual business model worries / threatens blue chip brands | PS-VBW |

**Subcategory 6. What are the major challenges for traditional brands?**

| Code name | Explanation | Code |
|---|---|---|
| Brand not enough | Brand name not enough / new services, added value required | PS-BNE |
| FMCG sector | FMCG more tricky to go online / criticism of FMCG brands | PS-CGT |
| Simultaneous models | Managing 'bricks & mortar' and 'virtual' business models simultaneously without internal conflict | PS-CON |
| High costs: financial and other | Transaction / operating costs / overheads are too high compared to virtual businesses | PS-CTH |
| Different medium | Different medium in overall communications package / strategy | PS-DMO |
| Belief | Blue chips do not believe in Internet / don't take it seriously | PS-DTS |
| Small business threat | Strong competition from virtual businesses as Internet empowers small companies and new brands / Speed to market increases | PS-ESC |
| Brand extension | Actively create new media presence / brand extension into new media without conflicting existing offline identity | PS-EXT |
| Fame | Famous brand / customer trust is an opportunity | PS-FBO |
| Replicating | Replicating what they do offline is a waste of time | PS-RWT |
| Slow | Blue chip companies are slow to react / change | PS-SLO |

**Subcategory 7. What are the major challenges for virtual brands?**

| Code name | Explanation | Code |
|---|---|---|
| Awareness | Creating brand awareness / recognition | PS-CBA |
| Traditional media | Difficult to build brand only on the Internet without using traditional media | PS-DBB |
| Gaps | Identifying gaps in the market that are not fulfilled by blue chips | PS-IDF |
| Tele-working | Tele-working challenges (more difficult to control staff) | PS-TEL |
| Trust | Trust more difficult to build due to lack of physical existence | PS-TMD |
| Word-of-mouth | Word-of-mouth very important for virtual brands | PS-WOM |

**Subcategory 8. What are the common challenges for both traditional and virtual brands?**

| Code name | Explanation | Code |
|---|---|---|
| Customer-centric | Customer focus / dialog important | PS-CFO |
| Infrastructure | Investing in infrastructure | PS-INS |
| Customer service | Meeting consumer expectations / providing good service levels | PS-MCE |
| Virtual communities | Creating virtual communities as adding value | PS-VCO |
| Design & Navigation | Design and navigation important in web site success | PS-DAN |

**<u>Category 3) Electronic Commerce – Overall code: EC</u>**

**Subcategory 1. How would you define electronic commerce?**

| Code name | Explanation | Code |
|---|---|---|
| Narrow | Definition restricted to online transactions | EC-OTO |
| Wide | Whole spectrum / continuum of different activities | EC-WID |

**Subcategory 2. Motives in different types of electronic commerce**

| Code name | Explanation | Code |
|---|---|---|
| B-to-B | Cost savings and efficiency as the main motives for Business-to-business e-commerce | EC-BTB |
| B-to-C | Brand building and convenience as the main motives for Business-to-consumer e-commerce | EC-CON |

**Subcategory 3. Attributes of electronic commerce**

| Code name | Explanation | Code |
|---|---|---|
| Accessibility | e-commerce for finding something that was inaccessible before | EC-ACC |
| Cost comparison | E-commerce is good for finding the cheapest | EC-CHE |
| Becoming more important | Commerce becoming more important than 'brand building exercises / advertising | EC-CMI |
| Convenience | E-commerce as convenience | EC-CNV |
| High involvement | Integrated nature of e-commerce involves customer in the business process | EC-INT |
| Brand reinforcement | E-commerce makes brands stronger | EC-MBS |
| Partnerships | E-commerce creating partnerships | EC-PAR |
| Customisation | E-commerce allows personalisation / customisation | EC-PER |
| Quick delivery | Quicker delivery / better efficiency than normal channels | EC-QUI |
| Cost savings | Cost benefits / savings for both consumer and company | EC-SAV |

**Subcategory 4. Types of products you would or would not buy on the Internet differentiated by experts**

| Code name | Explanation | Code |
|---|---|---|
| Difficult | Groceries, clothing, etc. more difficult to sell | EC-DTS |
| Easy | Computers, software, CDs, books, travel, etc. are easy to sell on the Internet | EC-ETS |

**<u>Category 4) The 'New Consumer' and the Internet – Overall code: NC</u>**

**Subcategory 1. What do you think about the concept of the 'New Consumer'? / Implications of the 'New Consumer' on online branding**

| Code name | Explanation | Code |
|---|---|---|
| Brand aware | Consumers relate brands to corporations / Internet makes consumers aware of brands and related corporations | NC-BTC |
| Involved | Consumers' involvement with brand and web site | NC-INV |
| Expectations | Consumers' expectations are shaped / raised by Internet and technology | NC-CES |
| Concept not new | 'New Consumer' concept is not new / not introduced by the Internet | NC-CNN |
| Same consumers | Consumers haven't changed / are still the same | NC-CSS |
| Demographics | Consumer demographics important | NC-DEM |
| Empowered | Consumers are empowered / have more control | NC-EMP |
| Easy to influence | Consumers are still easy to influence | NC-ETI |

| | | |
|---|---|---|
| Gratification | Consumers expect instant gratification | NC-IGR |
| Time poor | Consumers have less time | NC-LTI |
| Sophisticated | Consumers are more sophisticated | NC-SOP |
| Attitude | Consumers' attitude to web site important in online branding | NC-ATT |

**Subcategory 2. Do consumers follow the classical model of purchasing behaviour on the Internet?**

| Code name | Explanation | Code |
|---|---|---|
| Critical of model | Criticism of the classical model | NC-CCM |
| Same | The same on the Internet | NC-DNC |
| Less impulse buying | Impulse buying occurs less on the Internet | NC-IML |
| More impulse buying | Impulse buying occurs more on the Internet | NC-IMM |

**Subcategory 3. Does the perceived risk increase online due to the lack of human interaction?**

| Code name | Explanation | Code |
|---|---|---|
| Brand name enough | Brand name as security to reduce perceived risk | NC-BAS |
| Depends | Depends on the product | NC-DOP |
| Service more important | Not a hindrance / efficient service more important than human contact | NC-NAH |
| Technology | Technology will allow more human interaction on the Internet / E-mail as human touch | NC-TEC |
| Trust | Trust in intermediary / retailer important | NC-TII |

**Category 5) Prices and the Internet – Overall code: PI**

**Subcategory 1. Will the Internet level prices because of the ease to find information and compare different brands and prices?**

| Code name | Explanation | Code |
|---|---|---|
| No | Comparison does not affect prices / brands can still charge premium prices | PI-CNE |
| Yes, geographical | Level prices due to geographical boundaries disappearing | PI-GEO |
| Yes, searchability | Intelligent search agents / independent arbiters have a role in price levels | PI-ISA |
| Yes, comparison | Prices will move to realistic levels due to comparison | PI-REA |
| Yes, reduced costs | Level prices due to cost savings | PI-SAV |

**Subcategory 2. Will the Internet force the brands to "move down"?**

| Code name | Explanation | Code |
|---|---|---|
| Depends | Depends on the product / industry | PI-DOP |

## Category 6) Brand Strategies on the Internet – Overall code: BS

### Subcategory 1. What levels of management are involved in web site development?

| Code name | Explanation | Code |
|---|---|---|
| Changed | Changed over time from junior / IT to senior levels | BS-COT |
| Depends | Depends on the size / type of organisation | BS-DOS |
| High levels | High levels involved | BS-HLI |
| Low levels | High levels not involved because they don't understand Internet, or they are technophobes, etc. | BS-HLT |
| New departments | New departments / cross-company teams being created | BS-NDC |

### Subcategory 2. Do companies integrate their Internet strategy with their overall marketing strategy?

| Code name | Explanation | Code |
|---|---|---|
| Corporate and individual | Corporate web site along with individual brand sites | BS-CAB |
| Critical of British | Criticism of British businesses | BS-CBB |
| Centralisation | Tendency towards centralisation of information | BS-CEN |
| Internal politics | Internal battles / politics over web site strategy | BS-INP |
| No strategy | Most companies do not have a strategy | BS-NOS |
| Reactionary | Companies are reactionary rather than strategic | BS-REA |

### Subcategory 3. Information overload: Do strong Internet brands offer little but high quality information?

| Code name | Explanation | Code |
|---|---|---|
| No overload | No information overload because consumers have control over what they get from the Internet | BS-CHC |
| Depends | Depends on company | BS-DOC |
| Reliability of info | Difficult to find information you can trust | BS-DTI |
| Yes, there is overload | There is an information overload | BS-IOL |
| Unnecessary info | Yes, some companies publish unnecessary info | BS-LHQ |
| Portals | Portals address this problem / reduce info overload | BS-POR |

### Subcategory 4. How do you communicate brand identity online?

| Code name | Explanation | Code |
|---|---|---|
| No change | Communicating brand identity is the same as in other media | BS-BIS |
| Look and feel | 'Look and feel' important (design issues) | BS-LAF |
| Navigation | Navigation is important | BS-NAV |
| Different | Internet is very different from traditional media in terms of communicating the brand identity | BS-NCM |

**Subcategory 5. Should the brand identity / image / personality be consistent with other marketing communications media?**

| Code name | Explanation | Code |
|---|---|---|
| Not necessarily | Not necessarily / Need to change brand expression or communication | BS-CBE |
| Yes | Yes, you have to give same messages / keep consistency | BS-CBM |
| More extravagant | Some brands can be more wacky / extravagant on the Internet | BS-MEX |

**Subcategory 6. Is it more difficult to communicate the emotional values of a brand online as opposed to traditional media?**

| Code name | Explanation | Code |
|---|---|---|
| Depends | Depends on the brand | BS-DOB |
| More difficult | Agree that it is more difficult | BS-EMD |
| Easier | No, it is easier to communicate emotional values on the Internet | BS-EME |
| Not more difficult | No, because Internet is becoming more advanced / televisual | BS-EMN |

**Subcategory 7. How can companies add value to their brands online?**

| Code name | Explanation | Code |
|---|---|---|
| Unique values | Brands need to add new / unique values on the Internet | BS-ADD |
| Customisation | Customisation adds value | BS-CUS |
| Entertainment | Entertainment and fun sites add value | BS-ENT |
| Experience | Creating a valuable brand experience (creativity) adds value | BS-EXP |
| Free stuff | Free offerings / free ISPs / promotions | BS-FRE |
| Information | Information / education as added value | BS-INF |
| Relationships | Building relationships adds value | BS-REL |
| Reduced costs | Reduction in transaction costs / price | BS-RTC |
| Customer service | Improving customer service levels by Internet technology | BS-SER |
| Empowering customers | Empowering customers by giving them more control in their interactions via the Internet | BS-EMP |
| Virtual communities | Building online communities | BS-VCO |

**Subcategory 8. How do you envisage the future of Internet branding?**

| Code name | Explanation | Code |
|---|---|---|
| Alliances | Strategic alliances will be important | BS-ALL |
| Customer service | Customer service will be most important | BS-CSI |
| Difficult to predict | Difficult to predict future due to the fast changing nature of the Internet | BS-FDP |
| Rapid growth | Internet / E-commerce small now, but will grow rapidly | BS-GRO |
| Lead identity | Internet will lead the brand identity | BS-ILI |
| Kiosks | Interactive kiosks will increase | BS-KIO |
| Mainstream | Internet will become more mainstream / Demographics will change due to free ISPs and interactive TV) | BS-MMS |
| New brands | New brands will emerge | BS-NBE |
| Other media survive | Internet will not replace other communications media | BS-NRO |
| Small brands | Small brands will have a chance to compete and survive | BS-SBS |

| | | |
|---|---|---|
| Security | Transaction security is important for growth | BS-SEC |
| Campaigns | Alternatives to static web sites will become popular | BS-STC |
| Telecom costs | Telecom costs are a barrier to growth in the UK | BS-TEL |
| Adding value | Brands need to add value on the Internet | See BS-ADD in previous question |

**B) Axial Coding Stage**

The following table shows the patterns, conditions, interactions, strategies and consequences identified at this stage. A new code was given to each new concept, and it was cross-referenced to the initial categories and subcategories.

| PATTERN | New code | Emerged from | Relevant category / subcategory | Original codes |
|---|---|---|---|---|
| 1) Value | VAL | Brand as 'value' in definitions category | Category 1 Subcategory 1 | DB-VAL |
| | | Difference to the branding process online | Category 1 Subcategory 3 | DB-ADD |
| | | Challenge for traditional brands | Category 2 Subcategory 6 | PS-BNE PS-RWT |
| | | Challenge for both traditional and virtual brands | Category 2 Subcategory 8 | PS-VCO |
| | | Adding value as a brand strategy | Category 6 Subcategory 7 | BS-ADD |
| 2) Brand identity /image / personality | PER | Brand as 'identity' in definitions category | Category 1 Subcategory 1 | DB-ID |
| | | Brand as 'image in consumers' minds' in definitions category | Category 1 Subcategory 1 | DB-IM |
| | | Brand as 'personality' in definitions category | Category 1 Subcategory 1 | DB-PER |
| | | Difference to the branding process online (Web site experience is part of brand identity) | Category 1 Subcategory 3 | DB-IPE |
| | | Challenges for traditional brands online (brand extension into new media without conflicting offline identity) | Category 2 Subcategory 6 | PS-EXT |
| | | Attributes of e-commerce (E-commerce makes brands stronger) | Category 3 Subcategory 3 | EC-MBS |
| | | Brand strategies (Communicating brand identity is different on the Internet) | Category 6 Subcategory 4 | BS-NCM |
| | | Brand strategies (Although consistency of messages is important, brands can be more wacky on the Internet) | Category 6 Subcategory 5 | BS-MEX |
| | | The future of Internet branding (Internet will lead the brand identity) | Category 6 Subcategory 8 | BS-ILI |

| PATTERN | New code | Emerged from | Relevant category / subcategory | Original codes |
|---|---|---|---|---|
| 3) Interactivity | INT | Difference to the branding process online (Interactivity is a key issue) | Category 1 Subcategory 3 | DB-IPE |
| | | Attributes of the new paradigm (All attributes identified are different dimensions of interactivity) | Category 2 Subcategory 2 | PS-TWO |
| | | Challenges for brands online (Design & Navigation issues) | Category 2 Subcategory 8 | PS-DAN |
| | | Challenges for brands online (Virtual communities as adding value) | Category 2 Subcategory 8 | PS-VCO |
| | | Attributes of e-commerce (Most functionalities required for e-commerce are also features of interactivity) | Category 3 Subcategory 3 | EC-PER |
| | | The New Consumer & the Internet (Technology will allow interaction) | Category 4 Subcategory 3 | NC-TEC |
| | | Brand strategies (Look & feel of web sites / design issues are important) | Category 6 Subcategory 4 | BS-LAF |
| | | Brand strategies (Navigation of web site is important) | Category 6 Subcategory 4 | BS-NAV |
| | | Brand strategies (Internet is becoming more advanced and televisual, hence can communicate emotional values) | Category 6 Subcategory 6 | BS-EMN |
| | | Brand strategies (Customisation adds value) | Category 6 Subcategory 7 | BS-CUS |
| | | Brand strategies (Entertainment adds value) | Category 6 Subcategory 7 | BS-ENT |
| | | Brand strategies (Valuable brand experience adds value) | Category 6 Subcategory 7 | BS-EXP |
| | | Brand strategies (Information / education adds value) | Category 6 Subcategory 7 | BS-INF |
| | | Brand strategies (Improving customer service by Internet technology adds value) | Category 6 Subcategory 7 | BS-SER |
| | | Brand strategies (Building online communities adds value) | Category 6 Subcategory 7 | BS-VCO |
| | | The Future (Alternatives to static web sites will become popular) | Category 6 Subcategory 8 | BS-STC |
| 4) Expectations | EXP | Challenges for brands online (Meeting customer expectations/providing good service levels) | Category 2 Subcategory 8 | PS-MCE |
| | | Attributes of e-commerce (Quicker delivery/better efficiency than normal channels) | Category 3 Subcategory 3 | EC-QUI |
| | | The New Consumer concept (Consumer expectations are shaped/raised by Internet and technology) | Category 4 Subcategory 1 | NC-CES |

| PATTERN | New code | Emerged from | Relevant category / subcategory | Original codes |
|---|---|---|---|---|
| | | The New Consumer concept (Consumers expect instant gratification) | Category 4 Subcategory 1 | NC-IGR |
| 5) Involvement | INV | Brand definition (Associations that consumers identify themselves with) | Category 1 Subcategory 1 | DB-ASO |
| | | Paradigm shifts (Internet is a voluntary, deliberate activity) | Category 2 Subcategory 2 | PS-VOL |
| | | Attributes of e-commerce (Integrated nature of e-commerce involves customer in the business process) | Category 3 Subcategory 3 | EC-INT |
| | | The New Consumer concept (Internet makes consumers aware of brands and related corporations) | Category 4 Subcategory 1 | NC-BTC |
| | | The New Consumer concept (Internet makes consumers more involved with brands and their web sites) | Category 4 Subcategory 1 | NC-INV |
| | | Brand strategies (Building relationships adds value) | Category 6 Subcategory 7 | BS-REL |
| 6) Empowerment | EMP | The New Consumer concept (Consumers are empowered / have more control) | Category 4 Subcategory 1 | NC-EMP |
| | | Brand strategies (No information overload as consumers control what they get from the Internet) | Category 6 Subcategory 3 | BS-CHC |
| | | Brand strategies (Empowering customers by giving them more control in their interactions via the Internet) | Category 6 Subcategory 7 | BS-EMP |
| 7) Attitude to web site | ATT | Challenges for brands online (Design & Navigation issues are important in web site success) | Category 2 Subcategory 8 | PS-DAN |
| | | The New Consumer concept (Consumers' attitude to web site is important in online branding) | Category 4 Subcategory 1 | NC-ATT |
| | | Brand strategies (Look & feel of web sites / design issues are important) | Category 6 Subcategory 4 | BS-LAF |
| | | Brand strategies (Navigation of web site is important) | Category 6 Subcategory 4 | BS-NAV |

| CONDITIONS FOR CHANGE | New code | Emerged from | Relevant category / subcategory | Original codes |
|---|---|---|---|---|
| Cost savings | SAV | Attributes of the new paradigm (Transaction costs are lower on the Internet) | Category 2 Subcategory 2 | PS-TRA |
| | | Factors affecting business models (Cost savings as a reason to change business model) | Category 2 Subcategory 4 | PS-CSA |

| | | | | |
|---|---|---|---|---|
| | | Challenges for traditional brands online<br>(Their transaction costs are too high compared to virtual businesses) | Category 2<br>Subcategory 6 | PS-CTH |
| | | Motives in B-to-B e-commerce<br>(Cost savings and efficiency are the main motives) | Category 3<br>Subcategory 2 | EC-BTB |
| | | Attributes of e-commerce<br>(Cost benefits / savings for both consumer and company) | Category 3<br>Subcategory 3 | EC-SAV |
| | | Prices and the Internet<br>(Prices will level due to cost savings) | Category 5<br>Subcategory 1 | PI-SAV |
| | | Brand strategies (Reduction in transaction costs / price adds value) | Category 6<br>Subcategory 7 | BS-RTC |
| Different ways of making money | DIF | Attributes of the new paradigm<br>(Disintermediation or creation of new intermediaries) | Category 2<br>Subcategory 2 | PS-DIS |
| | | Attributes of the new paradigm<br>(Free offerings have become the norm on the Internet) | Category 2<br>Subcategory 2 | PS-FRE |
| | | Change in business models | Category 2<br>Subcategory 3 | PS-BMC |
| | | Factors affecting business models | Category 2<br>Subcategory 4 | PS-MON |
| | | Challenges for virtual brands<br>(Identifying gaps in the market that are not fulfilled by traditional companies) | Category 2<br>Subcategory 7 | PS-IDF |
| **STRATEGIES (SUCCESS FACTORS)** | **New code** | **Emerged from** | **Relevant category / subcategory** | **Original codes** |
| Virtual versus traditional business models | VIR | Changes to the branding process online<br>(digital and traditional brands are different) | Category 1<br>Subcategory 3 | DB-DVE |
| | | Challenges for traditional brands online (brand extension into new media without conflicting offline identity) | Category 2<br>Subcategory 6 | PS-CON |
| | | Challenges for traditional brands online (famous brand name as an advantage) | Category 2<br>Subcategory 6 | PS-FBO |
| | | Challenges for virtual brands<br>(Word-of-mouth very important for virtual brands) | Category 2<br>Subcategory 7 | PS-WOM |
| Catalogue model / Purpose built | MOD | Factors affecting business models (catalogue companies are more successful online because they have the experience) | Category 2<br>Subcategory 4 | PS-CAT |
| | | Factors affecting business models (businesses purpose-built for the Internet are more likely to succeed) | Category 2<br>Subcategory 4 | PS-PBI |

| | | | | |
|---|---|---|---|---|
| First mover advantage | ADV | Factors affecting business models (first mover advantage can be important) | Category 2 Subcategory 4 | PS-FMA |
| Partnerships | PAR | Attributes of e-commerce (creating partnerships) | Category 3 Subcategory 3 | EC-PAR |
| | | The future of Internet branding (Strategic alliances will be important) | Category 6 Subcategory 8 | BS-ALL |
| **CONSEQUENCES** | **New code** | **Emerged from** | **Relevant category / subcategory** | **Original codes** |
| High stock values | STO | Factors affecting business models (stock value phenomenon) | Category 2 Subcategory 4 | PS-SVV |
| Virtual business model as threat to traditional models | THR | Factors affecting business models (virtual business model threatens blue chip brands) | Category 2 Subcategory 5 | PS-VBW |
| | | Challenges for traditional brands online (blue chip brands don't take Internet seriously) | Category 2 Subcategory 6 | PS-DTS |
| | | Challenges for traditional brands online (Internet empowers small companies and new brands as speed to market increases) | Category 2 Subcategory 6 | PS-ESC |
| | | Challenges for traditional brands online (blue chip companies are slow to react to change) | Category 2 Subcategory 6 | PS-SLO |
| | | The future of Internet branding (New brands will emerge) | Category 6 Subcategory 8 | BS-NBE |
| | | The future of Internet branding (Small brands will have a chance to compete and survive) | Category 6 Subcategory 8 | BS-SBS |

**C) Selective Coding stage**

This stage identified 'interactivity' and 'value' as the core categories in the conceptual model, which have specific relationships to other categories.

| Category | Code | Related to |
|---|---|---|
| Interactivity | INT | Value, Brand Personality, Involvement, Attitude to web site, Expectations, Perceived control |
| Value | VAL | Interactivity, Brand Personality, Involvement, Attitude to web site, Expectations, Perceived Control |

# APPENDIX 2- SUPPORTING MATERIAL FOR THE EXPERIMENTAL STUDY

## Appendix 2a - CONTENT ANALYSIS FORM FOR MEASURING INTERACTIVE FEATURES

Case Number:
Yahoo! Category:
URL:
Date URL Analysed:

Coder:
Sub-category:
Company/Name:
Place X here _____ if site is non-functioning

Please tick the appropriate box for the presence (Yes) or absence (No) of the following web site features:

| | | |
|---|---|---|
| (1) "Search engine" | ☐ Yes | ☐ No |
| (2) Text-only navigation or no-frames option for users with slower connection speeds or poor graphics ability | ☐ Yes | ☐ No |
| (3) Browser compatibility information / option | ☐ Yes | ☐ No |
| (4) Audio / video | ☐ Yes | ☐ No |
| (5) Product / service information | ☐ Yes | ☐ No |
| (6) General corporate information | ☐ Yes | ☐ No |
| (7) Language / country choice | ☐ Yes | ☐ No |
| (8) Promotional content (e.g. sales, sweepstakes, prize draws, competitions, free stuff, etc.) | ☐ Yes | ☐ No |
| (9) Entertaining content (e.g. quizzes, jokes, cartoons, games, etc.) | ☐ Yes | ☐ No |
| (10) Information on physical stores / dealers or a store locator | ☐ Yes | ☐ No |
| (11) Is shopping / purchasing available on the site? | ☐ Yes | ☐ No |
| (12) Does the web site offer customised products / services? | ☐ Yes | ☐ No |
| (13) Site index / site map | ☐ Yes | ☐ No |
| (14) "Menu bar" on first page | ☐ Yes | ☐ No |
| (15) "Menu bar" on subsequent pages | ☐ Yes | ☐ No |
| (16) Hot link(s) back to the home page | ☐ Yes | ☐ No |
| (17) Can visitors / customers personalise the web site? | ☐ Yes | ☐ No |
| (18) Customer survey / questionnaire | ☐ Yes | ☐ No |
| (19) Feedback / Complaints / Suggestions form | ☐ Yes | ☐ No |

| | | |
|---|---|---|
| (20) Contact information (address, phone, fax, e-mail) | ☐ Yes | ☐ No |
| (21) Free phone number / Call-back option | ☐ Yes | ☐ No |
| (22) Registration form | ☐ Yes | ☐ No |
| (23) E-mail updates / newsletters option | ☐ Yes | ☐ No |
| (24) Customer support / service area | ☐ Yes | ☐ No |
| (25) Security information | ☐ Yes | ☐ No |
| (26) Privacy information | ☐ Yes | ☐ No |
| (27) Ordering information | ☐ Yes | ☐ No |
| (28) Help button | ☐ Yes | ☐ No |
| (29) FAQs section | ☐ Yes | ☐ No |
| (30) Alternative offline ways to support search or ordering (e.g. order a catalogue, phone ordering through a sales representative, call back option, etc.) | ☐ Yes | ☐ No |
| (31) "Your account" button | ☐ Yes | ☐ No |
| (32) Shopping basket / trolley | ☐ Yes | ☐ No |
| (33) Order tracking (history and status) | ☐ Yes | ☐ No |
| (34) Quick ordering option | ☐ Yes | ☐ No |
| (35) Pricing and availability information | ☐ Yes | ☐ No |
| (36) Alternative payment options | ☐ Yes | ☐ No |
| (37) Delivery information | ☐ Yes | ☐ No |
| (38) Returns policy | ☐ Yes | ☐ No |
| (39) Any other improvement on customer service | ☐ Yes | ☐ No |

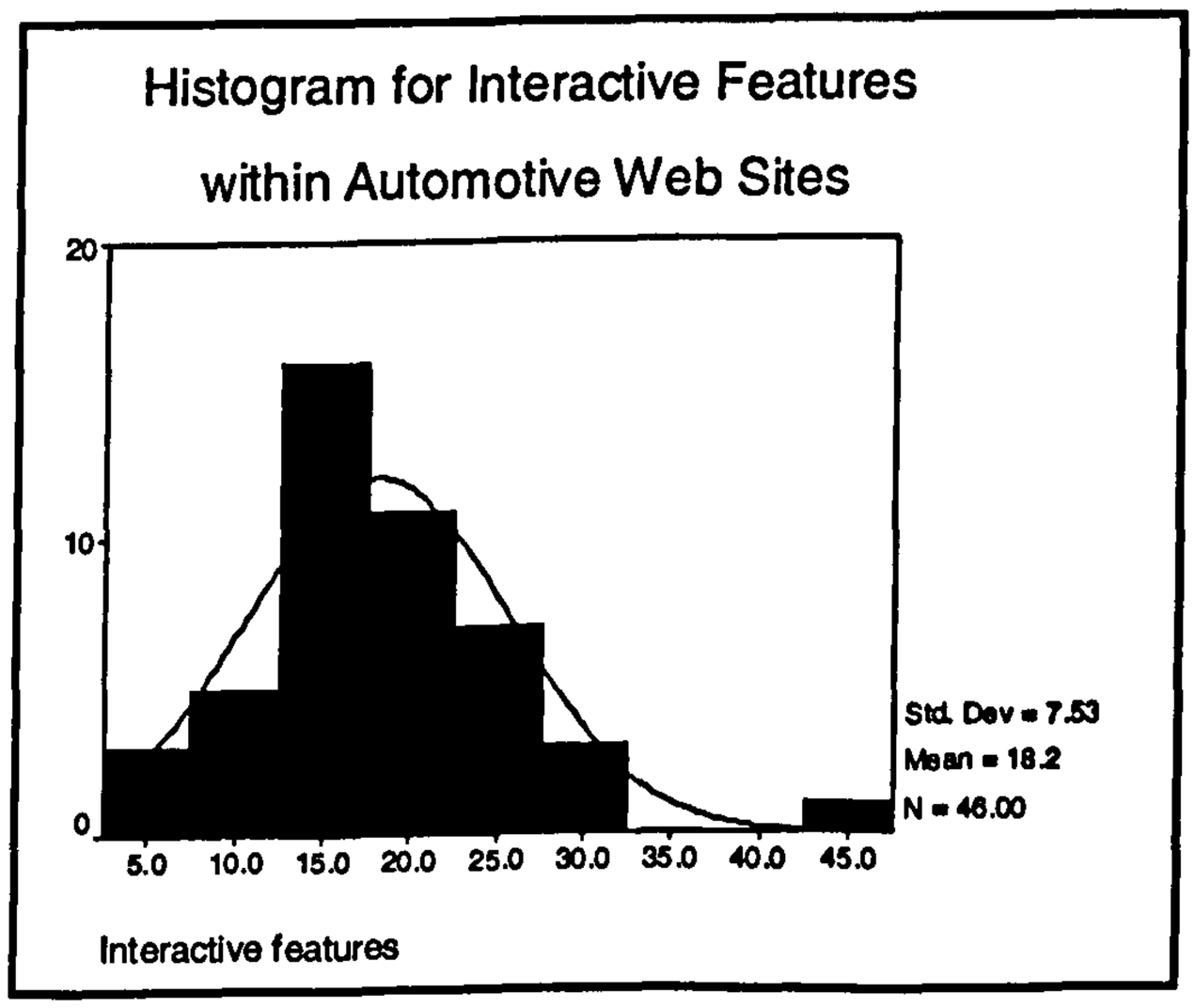
Please describe briefly: _____

| | | |
|---|---|---|
| (40) Hit counter | ☐ Yes | ☐ No |
| (41) Publication date / Last update message | ☐ Yes | ☐ No |
| (42) Cookies | ☐ Yes | ☐ No |
| (43) Chat room / synchronous discussion | ☐ Yes | ☐ No |
| (44) Newsgroup/"asynchronous" discussion | ☐ Yes | ☐ No |
| (45) Bulletin Board | ☐ Yes | ☐ No |
| (46) Other way for users to add or share information | ☐ Yes | ☐ No |

Please describe: _____

# Appendix 2b - INTERACTIVE FEATURES IN AUTOMOTIVE WEB SITES

| Ref # | Automotive Brand Web Site | No. of interactive features as of November 2001 | Ref # | Automotive Brand Web Site | No. of interactive features as of November 2001 |
|---|---|---|---|---|---|
| 1 | Alfa Romeo | 26 | 24 | Lotus | 21 |
| 2 | Aston Martin Lagonda | 14 | 25 | Marcos Cars | 13 |
| 3 | Audi | 18 | 26 | Mazda | 11 |
| 4 | Bentley | 12 | 27 | Mercedes-Benz | 15 |
| 5 | BMW | 19 | 28 | MG Cars | 15 |
| 6 | Cadillac | 4 | 29 | Mini | 26 |
| 7 | Caterham | 13 | 30 | Mitsubishi | 20 |
| 8 | Chrysler | 13 | 31 | Morgan | 23 |
| 9 | Citroen | 19 | 32 | Nissan | 16 |
| 10 | Daewoo | 16 | 33 | Peugeot | 31 |
| 11 | Daihatsu | 18 | 34 | Porsche | 28 |
| 12 | Fiat | 24 | 35 | Renault | 24 |
| 13 | Ford | 30 | 36 | Rolls-Royce | 11 |
| 14 | Ginetta | 7 | 37 | Rover | 18 |
| 15 | Grinnall | 9 | 38 | Saab | 22 |
| 16 | Honda | 27 | 39 | Seat | 19 |
| 17 | Hyundai | 13 | 40 | Subaru | 16 |
| 18 | Isuzu | 14 | 41 | Suzuki | 10 |
| 19 | Jaguar | 16 | 42 | Toyota | 22 |
| 20 | Jeep | 13 | 43 | TVR | 7 |
| 21 | Jensen Motors | 16 | 44 | Vauxhall | 46 |
| 22 | Land Rover | 22 | 45 | Volkswagen | 17 |
| 23 | Lexus | 15 | 46 | Volvo | 26 |



## Appendix 2 c – SUBJECT RECRUITMENT E-MAIL

Dear All,

I am a research student at the Business School, and I am looking for volunteers to help me with the final stage of my PhD research. The project is about consumer-brand interactions on the Internet; and your responses will help us gain a better understanding of certain web site design issues and consumer behaviour in online environments.

Your participation will involve a two-stage questionnaire filling, as well as some web site browsing. The first questionnaire takes about 10 minutes to fill, and you can do it virtually anywhere. Then on either Monday 20th May or Tuesday 21st May, I will need you to look at a web site for about half an hour in East Temporary Building, IT Training Room 32, and then fill in the second questionnaire (which takes about 15 minutes to complete). **(Total time commitment is no more than one and a half-hours)**

So if you feel you can take some time out browsing a web site and help my research at the same time :) or if you need any further information, please contact me by phone (54662) or e-mail (mailto:o.discombe@open.ac.uk) by the first week in May. I will greatly appreciate your help. The announcement for this research can also be found at Open House e-Xtra on the OU intranet: http://intranet.open.ac.uk/e-xtra/index.asp

Thanks in advance,

Oya Discombe
PhD Student
OUBS
Offices 8, First Floor, D1

Ext: 54662
e-mail: o.discombe@open.ac.uk

P.S. The questionnaires will not ask you about any sensitive personal information. They are all about your views as consumers on a particular brand and their web site. All data will remain confidential.

# Appendix 2d – QUESTIONNAIRE FOR THE EXPERIMENTS

The Open University
BUSINESS SCHOOL

This survey is part of an academic research project on consumer - brand interactions conducted by the Open University Business School. Your participation is totally voluntary and all the information about you will be kept completely confidential. Part 1 of this survey below asks for some demographic and Internet experience information as well as your views on Ford in general; and it will take you about 5-10 minutes to complete. There are no right or wrong answers to these questions - we are interested in your opinions. Your responses will help us gain a better understanding of consumer behaviour within the context of brands.

Questions will be presented in **bold** characters; and any specific instructions will be shown in *italics*. Please tick the box or circle the number that corresponds your answer. THE CONTENTS OF THIS FORM ARE ABSOLUTELY CONFIDENTIAL. INFORMATION IDENTIFYING THE RESPONDENT WILL NOT BE DISCLOSED TO ANY THIRD PARTIES UNDER ANY CIRCUMSTANCES.

## PART 1

### Section 1: You and the Internet...

**1. How long have you been using the Internet (including using e-mail, gopher, ftp, etc.)?**

- ☐ less than 6 months
- ☐ 6 to 12 months
- ☐ 1 to 3 years
- ☐ 4 to 6 years
- ☐ 7 years or more

**2. On average, how often do you use your WWW browser?** *By this, we mean using your browser (e.g. Internet Explorer, Netscape Navigator, etc.) for a specific set of tasks or activities. We do not mean how many times you launch your browser per day.*

- ☐ More than 9 times/day
- ☐ 5 to 8 times/day
- ☐ 1 to 4 times/day
- ☐ A few times a week
- ☐ Once a week
- ☐ Once a month

**3. On average, how many hours a week do you use your WWW browser?**

- ☐ 0 to 1 hours/week
- ☐ 2 to 4 hours/week
- ☐ 5 to 6 hours/week
- ☐ 7 to 9 hours/week
- ☐ 10 to 20 hours/week
- ☐ 21 to 40 hours/week
- ☐ Over 40 hours/week

**4. Have you ever visited Ford's web site?**

☐ Yes ☐ No

---

**Section 2: Your perceptions about Ford...**

**5. Quickly work through the characteristics listed below and indicate your first reaction to whether or not they describe Ford.**

*(Circle only one number per characteristic within the range where 7 indicates extremely descriptive and 1 indicates not at all descriptive.)*

| Characteristics | Not at all descriptive | | | | | | Extremely descriptive |
|---|---|---|---|---|---|---|---|
| Daring | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Trendy | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Exciting | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Spirited | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Cool | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Young | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Imaginative | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Unique | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Up-to-date | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Independent | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Contemporary | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**6. The purpose of this section is to measure your involvement or interest in the Ford brand. To take this measure we need you to judge this brand against a series of descriptive scales according to how YOU perceive the brand. Here is how you are to use these scales.**

If you feel that this brand is *very closely related* to one end of the scale, you should place your check mark as follows:

Unimportant _X_ :___:___:___:___:___:___ Important

or

Unimportant ___:___:___:___:___:___:_X_ Important

If you feel that this brand is *quite closely related* to one or the other end of the scale (but not extremely), you should place your check mark as follows:

Appealing ___:___:___:___:___:_X_:___ Unappealing

or

Appealing ___:_X_:___:___:___:___:___ Unappealing

If you feel that this brand seems *only slightly related* to one or the other end of the scale (but not really neutral), you should place your check mark as follows:

Uninterested ___:___:_X_:___:___:___:___ Interested

or

Uninterested ___:___:___:___:_X_:___:___ Interested

**IMPORTANT:**

1) Be sure that you check every scale for every statement; do not omit any.

2) Never put more than one check mark on a single scale.

Make each item a separate and independent judgement. Work at fairly high speed through this section of the questionnaire. Do not worry or puzzle over individual items. It is your first impressions, the immediate feelings about the items that we want. On the other hand, please do not be careless, because we want your true impressions.

**To me Ford is:**

important ____:____:____:____:____:____:____ unimportant

boring ____:____:____:____:____:____:____ interesting

relevant ____:____:____:____:____:____:____ irrelevant

exciting ____:____:____:____:____:____:____ unexciting

means nothing means a

to me ____:____:____:____:____:____:____ lot to me

appealing ____:____:____:____:____:____:____ unappealing

fascinating ____:____:____:____:____:____:____ mundane

worthless ____:____:____:____:____:____:____ valuable

involving ____:____:____:____:____:____:____ uninvolving

not needed ____:____:____:____:____:____:____ needed

**7. The following items assess your general favourability toward the Ford brand. For each pair of words below, place your check mark to show your attitude towards the Ford brand.**

Good _____:_____:_____:_____:_____:_____:_____ Bad

Unfavourable _____:_____:_____:_____:_____:_____:_____Favourable

Negative _____:_____:_____:_____:_____:_____:_____Positive

**8. The purpose of this section is to measure your interest in cars in general. There are no right or wrong answers to the following statements and a large number of people agree and disagree. Kindly indicate *your* personal opinion by circling any one number for each statement.**

| | Strongly agree | | | | | | Strongly disagree |
|---|---|---|---|---|---|---|---|
| I have a great interest in cars. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Cars are fascinating. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I have a compulsive need to know more about cars. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I'm crazy about cars. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I like car races. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I like to engage in conversation about cars. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**9. Please use the space below for any additional comments you may have about Ford.**

**Section 3: About you...**

Please provide the following personal information. All personal details will be kept strictly confidential, and will not be released to any third parties for any purposes.

**10. Your gender:**

☐ Male ☐ Female

**11. Your age group:**

☐ 16 - 24
☐ 25 – 34
☐ 35 - 44
☐ 45 - 54
☐ 55 - 64
☐ 65 and over

**12. What level is your highest educational achievement:**

☐ GCSE Level
☐ A-Level
☐ Certificate / Diploma Level
☐ Undergraduate Level
☐ Postgraduate Level

**13. Your status at the Open University:**

☐ Staff ☐ Student ☐ Other
Please specify:

**14. Do you hold a current UK driving license?**

☐ Yes ☐ No

**15. Are you a car owner?**

☐ Yes ☐ No

**16. Your contact details:**
Name :
OU e-mail :

---

**Thank you very much for completing Part 1 of this questionnaire. Please stop now and refer to the Task List for further instructions.**

---

# PART 2

This is the second part of our survey asking for your views on Ford in general and Ford's web site in specific; and it will take you about 10-15 minutes to complete. There are no right or wrong answers to these questions - we are interested in your opinions. Questions will be presented in **bold** characters; and any specific instructions will be shown in *italics*.

---

**1. Please check the box next to one of the statements below which best describes your opinion of Ford's web site.**

☐ much worse than expected
☐ worse than expected
☐ about as expected
☐ better than expected
☐ much better than expected

---

**2. The following items assess your general favourability toward the web site you just visited. Circle the number that best indicates your agreement or disagreement with each statement.**

| | Strongly disagree | | | | | | Strongly agree |
|---|---|---|---|---|---|---|---|
| I like the web site that I saw. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I think it is a good web site. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I think it is a nice web site. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**3. For each pair of words below, place your check mark to show how you feel about Ford's web site. Please take your time so as to arrive at a real characteristic description of your feelings.**

| | | |
|---|---|---|
| **Controlling** | _____: _____ : _____ : _____ : _____ : _____ : _____<br>1 2 3 4 5 6 7 | **Controlled** |
| (i.e. I felt in control of my interaction with the web site.) | | (i.e. I felt controlled by the web site in my interaction with it.) |
| | | |
| **Influential** | _____: _____ : _____ : _____ : _____ : _____ : _____<br>1 2 3 4 5 6 7 | **Influenced** |
| (i.e. I felt I influenced my interaction with the web site.) | | (i.e. I felt I was influenced by the web site in my interaction with it.) |
| | | |
| **Dominant** | _____: _____ : _____ : _____ : _____ : _____ : _____<br>1 2 3 4 5 6 7 | **Submissive** |
| (i.e. I felt I dominated my interaction with the web site.) | | (i.e. I felt submissive in my interaction with the web site.) |
| | | |
| **Autonomous** | _____: _____ : _____ : _____ : _____ : _____ : _____<br>1 2 3 4 5 6 7 | **Guided** |
| (i.e. I had the feeling of autonomy in my interaction with the web site.) | | (i.e. I felt I was being guided by the web site in my interaction with it.) |

**4. The following items assess the way you perceive this web site's interactivity. Circle the number that best indicates your agreement or disagreement with each statement.**

| | Strongly disagree | | | | | | Strongly agree |
|---|---|---|---|---|---|---|---|
| While I was on the site, I was always aware where I was. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| While I was on the site, I always knew where I was going. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| While I was on the site, I was always able to go where I thought I was going. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The hyper-linked images and texts tell me exactly what to expect. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The visual layout was like a roadmap during my exploration of the site. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| When I clicked on hyper-linked images or texts, I felt good about the instantaneous display of information. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| While I was on the site, I could quickly jump from one page to another. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I felt I did not get much useful information simply because it had too much information. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I was delighted to be able to choose which link and when to click. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I was pleased to see the option of expressing my feelings and opinions on the spot through e-mail or feedback form. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**5. Please evaluate the Ford web site you just visited. Circle the number that best indicates your agreement or disagreement with each statement.**

| | Strongly disagree | | | | | | Strongly agree |
|---|---|---|---|---|---|---|---|
| I find the site easy to learn to operate. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| My interaction with the site is clear and understandable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I find the site easy to navigate. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I find the site easy to use. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site has an attractive appearance. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The design is appropriate to the type of site. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site conveys a sense of competency. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site creates a positive experience for me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site provides accurate information. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site provides believable information. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site provides timely information. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site provides relevant information. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site provides easy to understand information. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site provides information at the right level of detail. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site presents the information in an appropriate format. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Strongly disagree | | | | | | Strongly agree |
| The site is clever and entertaining. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site is imaginative. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site is exciting. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site has a good reputation. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| It feels safe to complete transactions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| My personal information feels secure. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site creates a sense of personalization. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site conveys a sense of community. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| The site makes it easy to communicate with the organisation. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel confident that goods /services will be delivered as promised. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | Very low quality | | | | | | Very high quality |
| What is your overall view of this web site? | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**6. The purpose of this section is to measure your involvement or interest in brand web sites. To take this measure we need you to judge Ford's web site against a series of descriptive scales according to how YOU perceive the web site you have just visited.**

**To me Ford's web site is:**

important _____:_____:_____:_____:_____:_____:_____ unimportant

boring _____:_____:_____:_____:_____:_____:_____ interesting

relevant _____:_____:_____:_____:_____:_____:_____ irrelevant

exciting _____:_____:_____:_____:_____:_____:_____ unexciting

means nothing means

to me _____:_____:_____:_____:_____:_____:_____ a lot to me

appealing _____:_____:_____:_____:_____:_____:_____ unappealing

fascinating _____:_____:_____:_____:_____:_____:_____ mundane

worthless _____:_____:_____:_____:_____:_____:_____ valuable

involving _____:_____:_____:_____:_____:_____:_____ uninvolving

not needed _____:_____:_____:_____:_____:_____:_____ needed

**7. Quickly work through the characteristics listed below and indicate your first reaction to whether or not they describe Ford.** *(Circle only one number per characteristic within the range where 7 indicates extremely descriptive and 1 indicates not at all descriptive.)*

| **Characteristics** | **Not at all descriptive** | | | | | | **Extremely descriptive** |
|---|---|---|---|---|---|---|---|
| Daring | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Trendy | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Exciting | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Spirited | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Cool | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Young | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Imaginative | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Unique | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Up-to-date | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Independent | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Contemporary | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**8. The following items assess your general favourability toward the Ford brand. For each pair of words below, place your check mark to show your attitude towards the Ford brand.**

Good _____:_____:_____:_____:_____:_____:_____ Bad

Unfavourable _____:_____:_____:_____:_____:_____:_____ Favourable

Negative _____:_____:_____:_____:_____:_____:_____ Positive

**9. Please use the space below for any additional comments you may have about Ford's web site.**

**Thank you very much for completing this questionnaire. All responses will be treated in the strictest confidence. Copyright ©Oya Discombe Last revised: 16 May 2002**

## Appendix 2e - TASK LIST FOR THE FORD WEB SITE

Please perform the following tasks in the order that they are listed whilst you browse this web site. Try not to spend more than the allocated time limit to each task. Place a check mark to the box for each task as you complete them, and move on to the next one. Also write your comments if any, for each task. After you have completed all tasks, you can freely browse the sections you are particularly interested in.

| TASK | TIME LIMIT | DONE | COMMENTS |
|---|---|---|---|
| Quickly scan the submenu items without leaving the homepage. (e.g. when you place your mouse over the **Just looking** menu item, you see the submenus starting with Car range, commercial vehicles, etc. Just read these titles to familiarise yourself with the services in the site) | 1 min | ☐ | |
| 2) From the **Just looking** menu, click on the **Car range** submenu. Choose a car model that you might actually consider buying, and click on your selection. From the menu on the left, find the **Build your own** option. A second window will open up. Choose your car again. Configure your options, by choosing body style, derivative, engine & transmission, colour, trim, and options. Do not go into Finance and Summary. In the comments section of this form, tell us which model you've created, and how much it costs. | 20 min | ☐ | |
| 3) Close your current window. From the remaining window, click on the **Home** link at the bottom left of your screen, to go back to Ford's main home page. Until the instructor tells you to stop, keep browsing anything you want on the site. | 4 min | ☐ | |

# Appendix 3a – EXPLORATORY DATA ANALYSIS FOR ALL VARIABLES

**Descriptive Statistics**

| | N | Range | Minimum | Maximum | Mean | Std. Deviation | Variance |
|---|---|---|---|---|---|---|---|
| Pre-test Total Brand Personality Score | 78 | 58 | 11 | 69 | 35.79 | 11.754 | 138.165 |
| Pre-test Total Involvement Score | 78 | 50 | 11 | 61 | 34.95 | 11.489 | 131.997 |
| Pre-test Total Brand Attitude | 78 | 18 | 3 | 21 | 14.49 | 4.515 | 20.383 |
| Interest in cars - Total Score | 78 | 30 | 6 | 36 | 16.13 | 7.662 | 58.711 |
| Expectations | 77 | 4 | 1 | 5 | 3.55 | .994 | .988 |
| Total Score - Attitude toward web site | 77 | 18 | 3 | 21 | 14.51 | 4.701 | 22.095 |
| Total Perceived Control Score | 77 | 23 | 5 | 28 | 16.57 | 5.578 | 31.117 |
| Total Perceived Interactivity Score | 77 | 44 | 25 | 69 | 44.71 | 10.424 | 108.654 |
| Total Usability Value | 77 | 43 | 13 | 56 | 40.48 | 10.736 | 115.253 |
| Total Information Value | 77 | 38 | 11 | 49 | 34.60 | 8.609 | 74.112 |
| Total Entertainment Value | 77 | 18 | 3 | 21 | 11.60 | 4.982 | 24.823 |
| Total Interaction Value | 77 | 36 | 7 | 43 | 27.18 | 8.385 | 70.309 |
| Total Perceived Value Score | 77 | 121 | 48 | 169 | 113.86 | 28.254 | 798.308 |
| Post-test Total Involvement Score | 77 | 45 | 16 | 61 | 40.58 | 11.898 | 141.562 |
| Post-test Total Brand Personality Score | 77 | 54 | 13 | 67 | 41.17 | 14.704 | 216.195 |
| Post-test Total Brand Attitude | 77 | 18 | 3 | 21 | 14.84 | 4.620 | 21.344 |
| Valid N (listwise) | 77 | | | | | | |

## Appendix 3b – EXAMINATION OF NORMALITY

## Pre-test Total Brand Personality Score

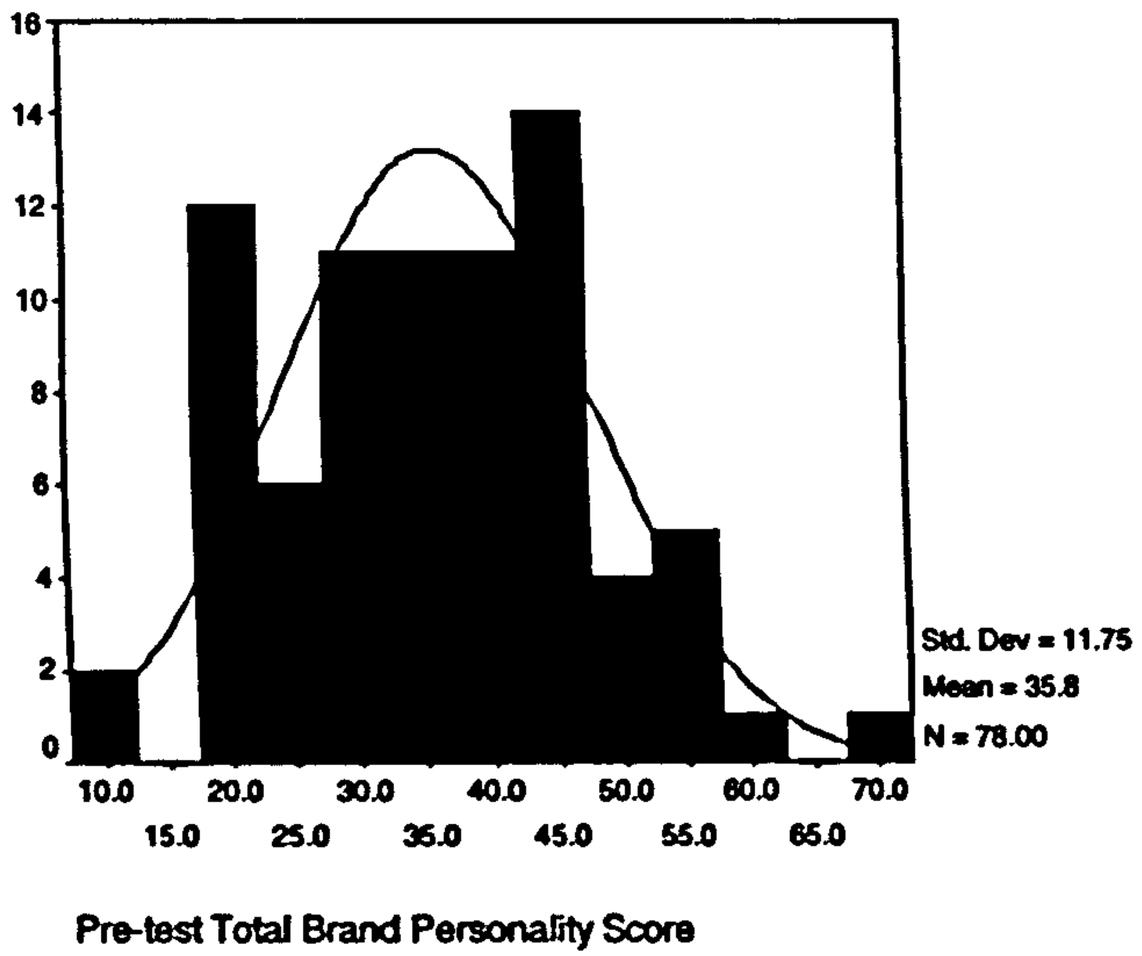
**Tests of Normality**

| | | Kolmogorov-Smirnov [a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Pre-test Total Brand Personality Score | Vauxhall | .135 | 26 | .200* | .924 | 26 | .056 |
| | Ford | .082 | 26 | .200* | .973 | 26 | .713 |
| | Volkswagen | .131 | 26 | .200* | .959 | 26 | .378 |

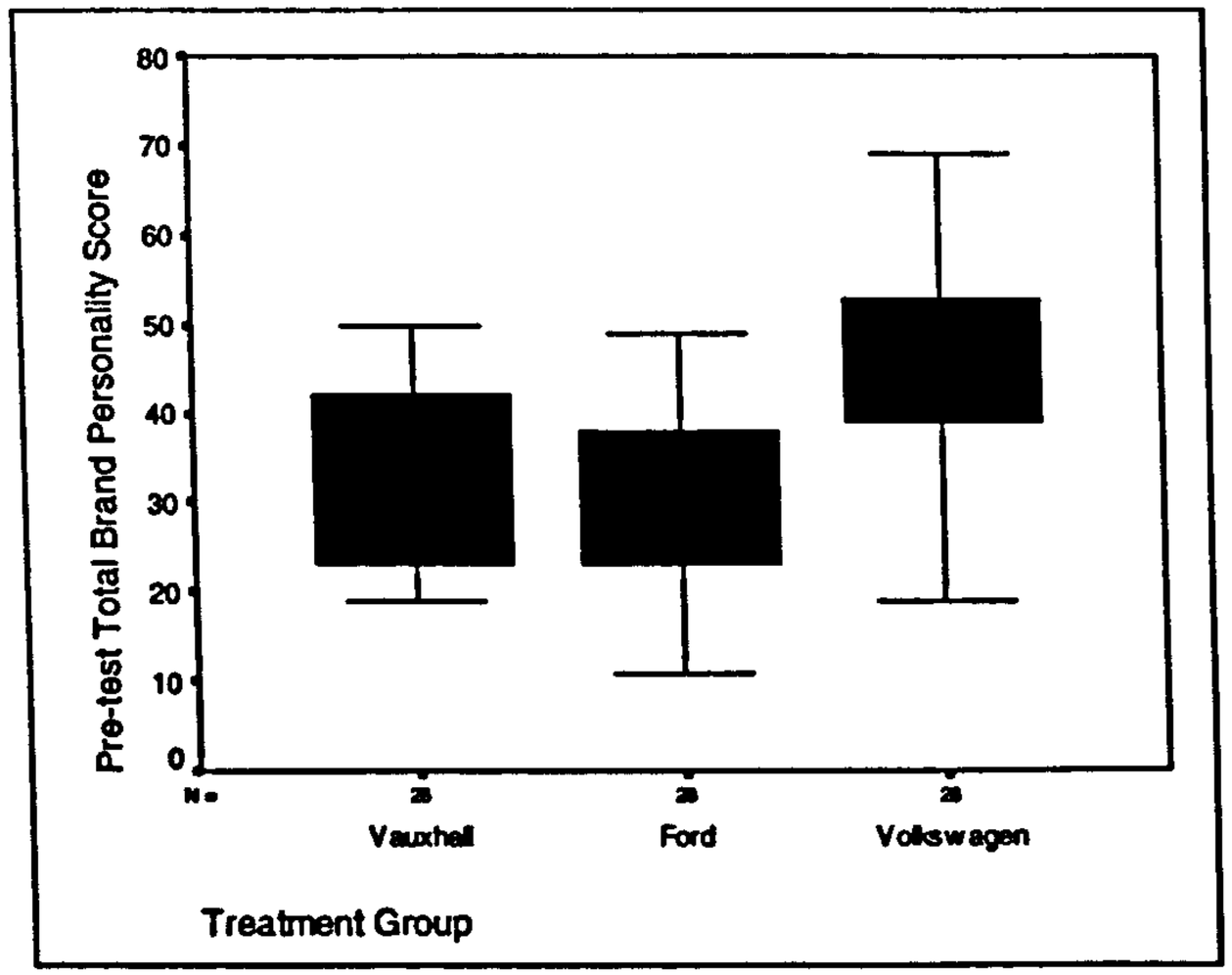
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



## Pre-test Total Involvement Score

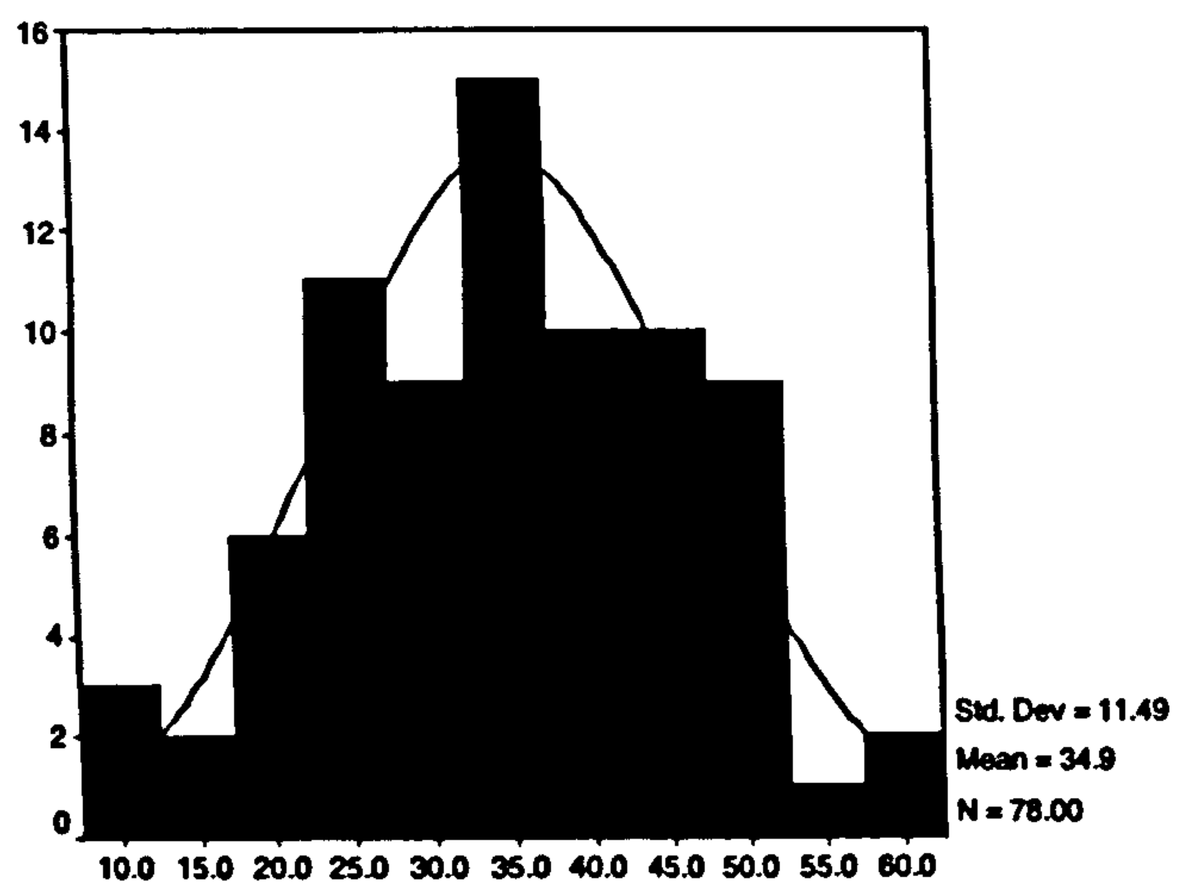
**Tests of Normality**

| | Treatment Group | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | | Statistic | df | Sig. | Statistic | df | Sig. |
| Pre-test Total Involvement Score | Vauxhall | .129 | 26 | .200* | .958 | 26 | .350 |
| | Ford | .097 | 26 | .200* | .967 | 26 | .550 |
| | Volkswagen | .121 | 26 | .200* | .967 | 26 | .553 |

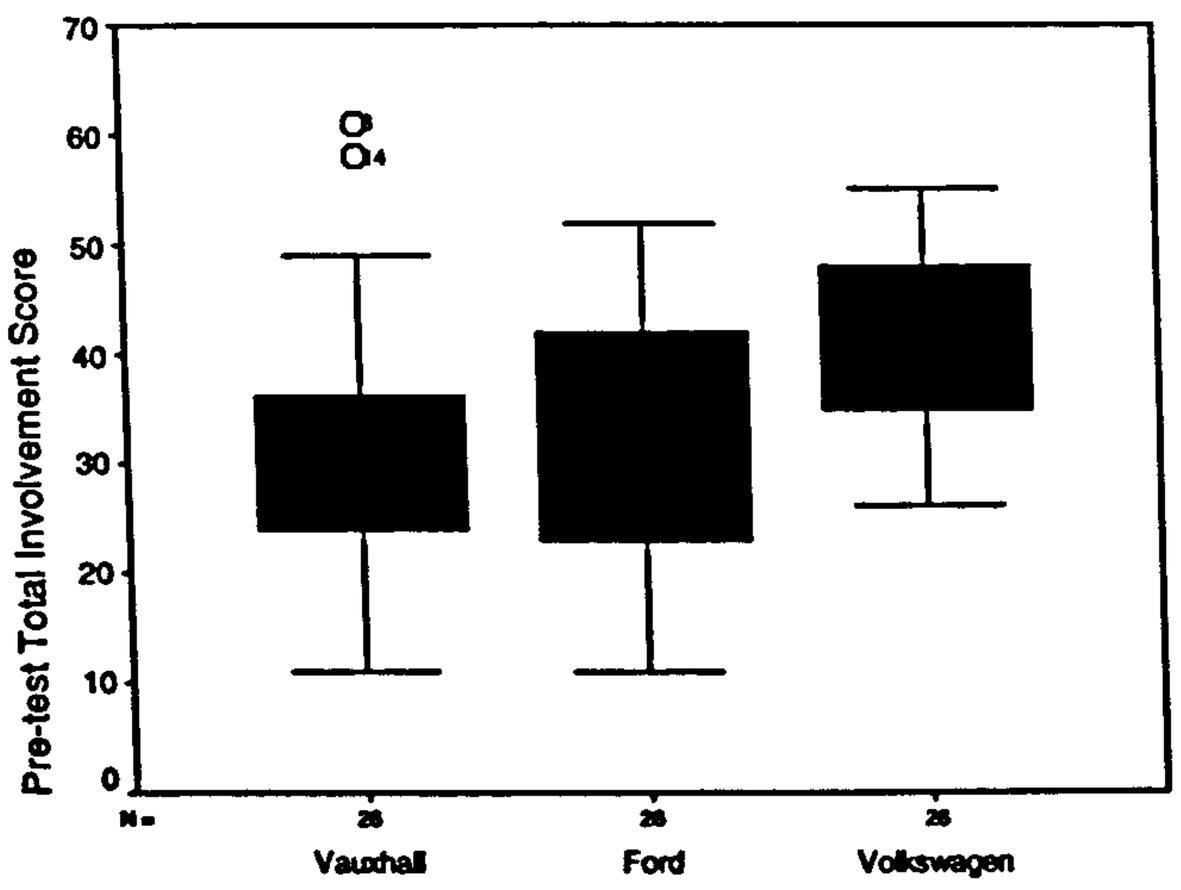
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



## Pre-test Total Brand Attitude Scores

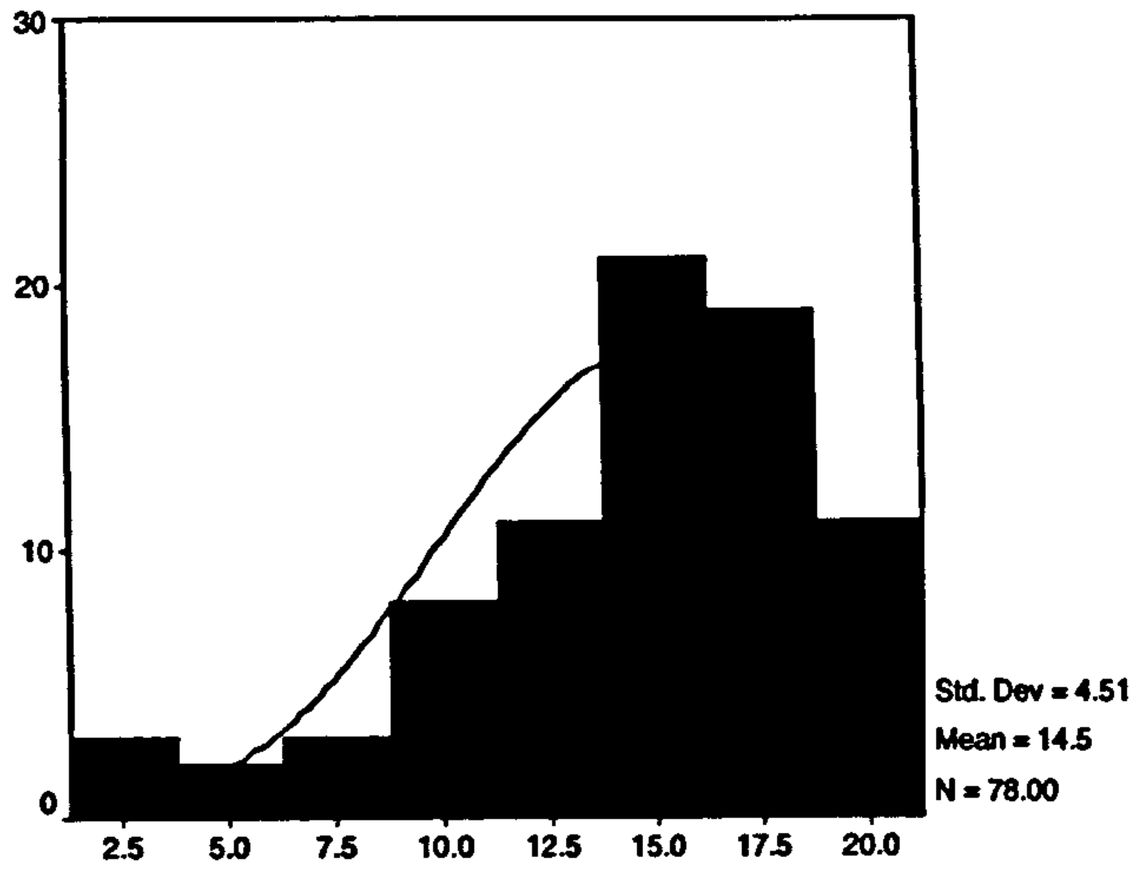
**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Pre-test Total Brand Attitude | Vauxhall | .180 | 26 | .029 | .904 | 26 | .020 |
| | Ford | .116 | 26 | .200* | .957 | 26 | .339 |
| | Volkswagen | .171 | 26 | .048 | .839 | 26 | .001 |

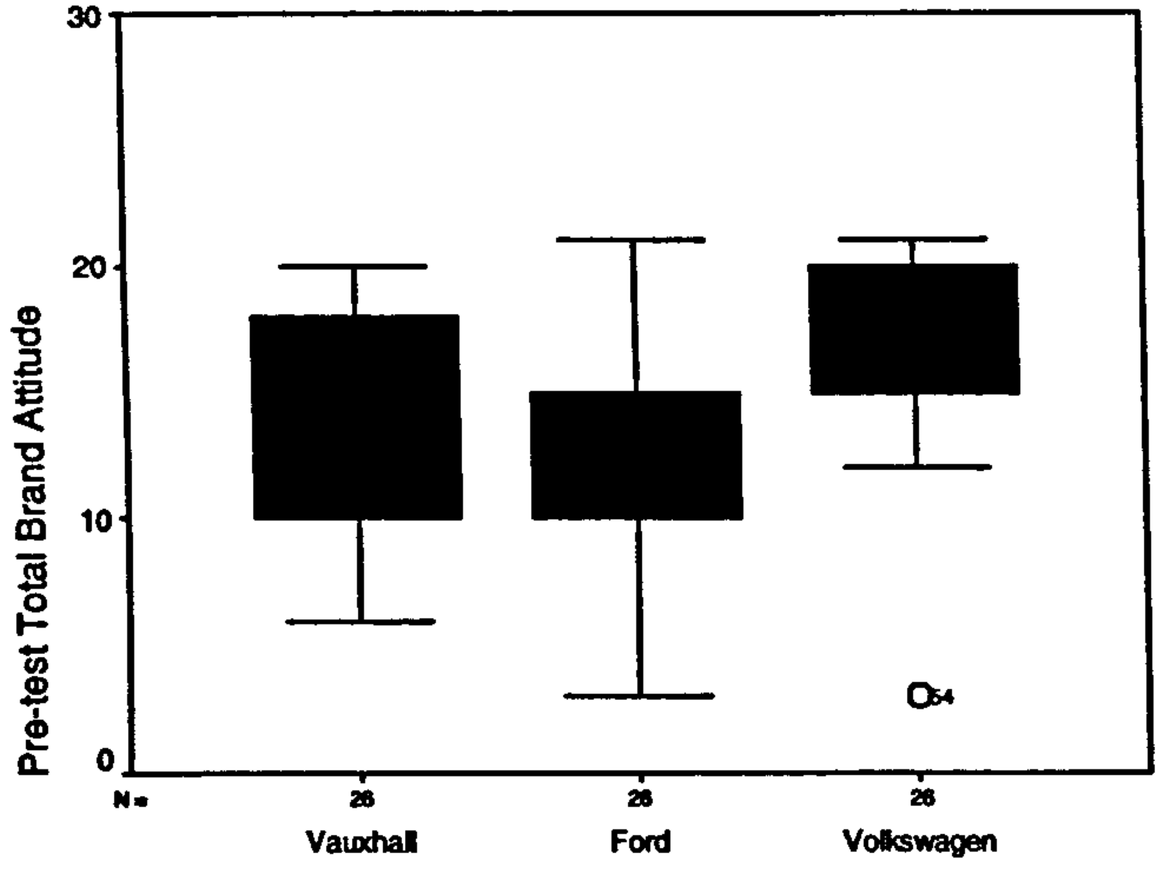
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



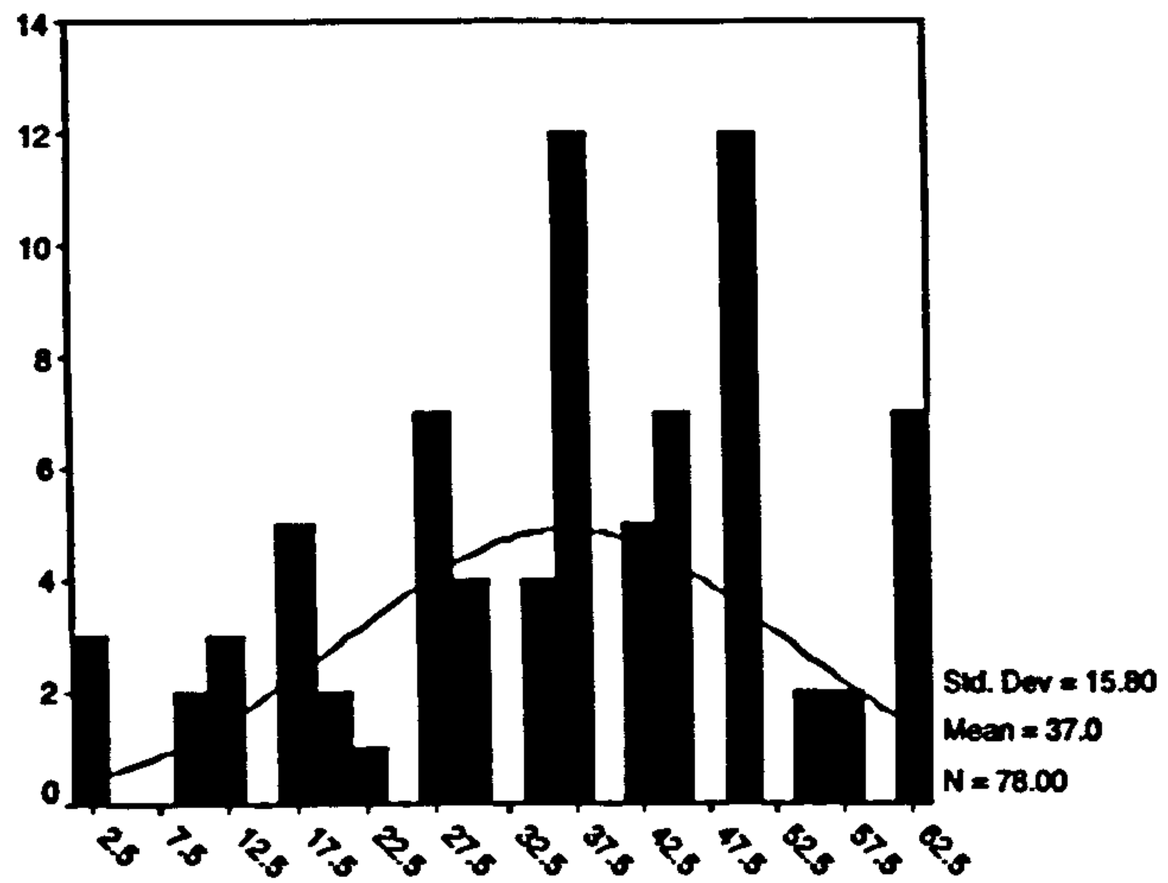
## Transformed scores for pre-test Brand Attitude

**Tests of Normality**

| | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Transformed pre-test brand attitude | .117 | 78 | .010 | .961 | 78 | .019 |

a. Lilliefors Significance Correction

**Histogram**



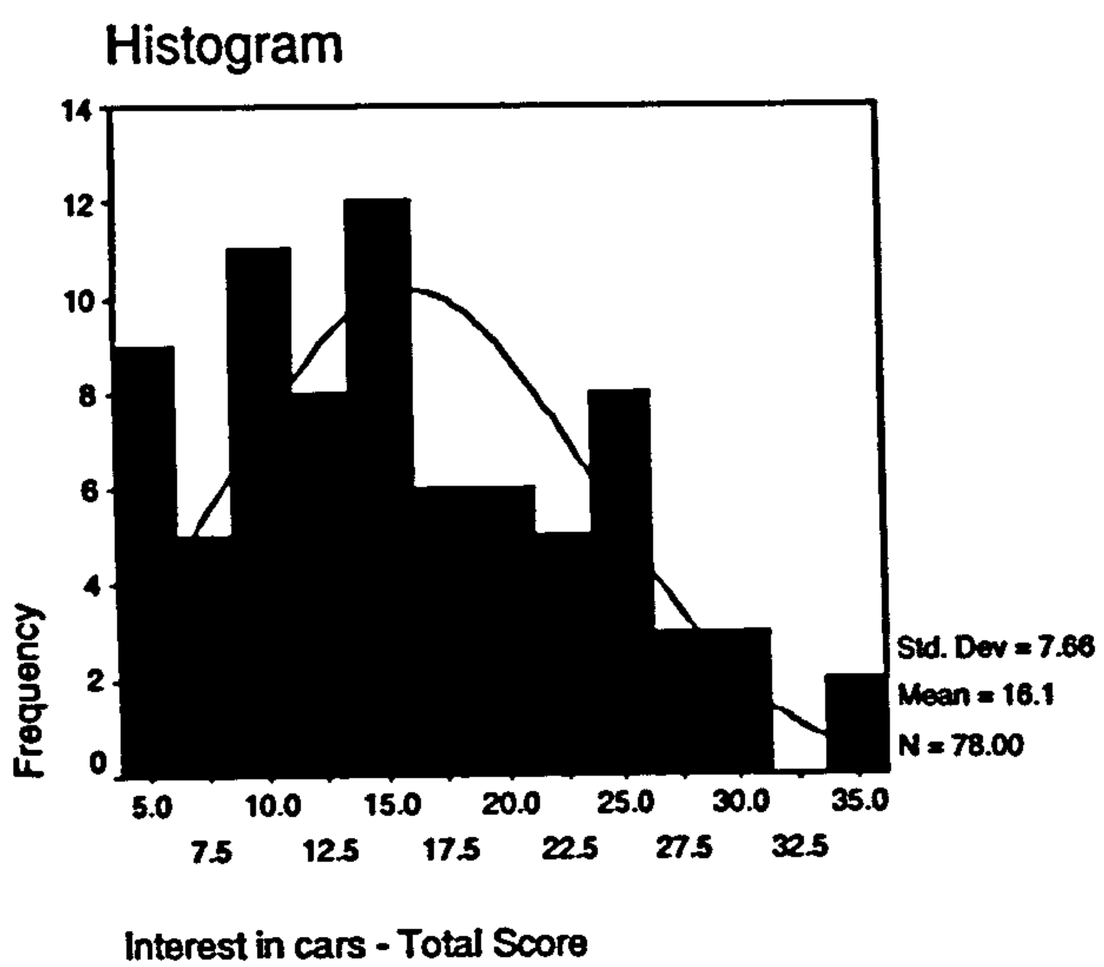
## Interest in Cars

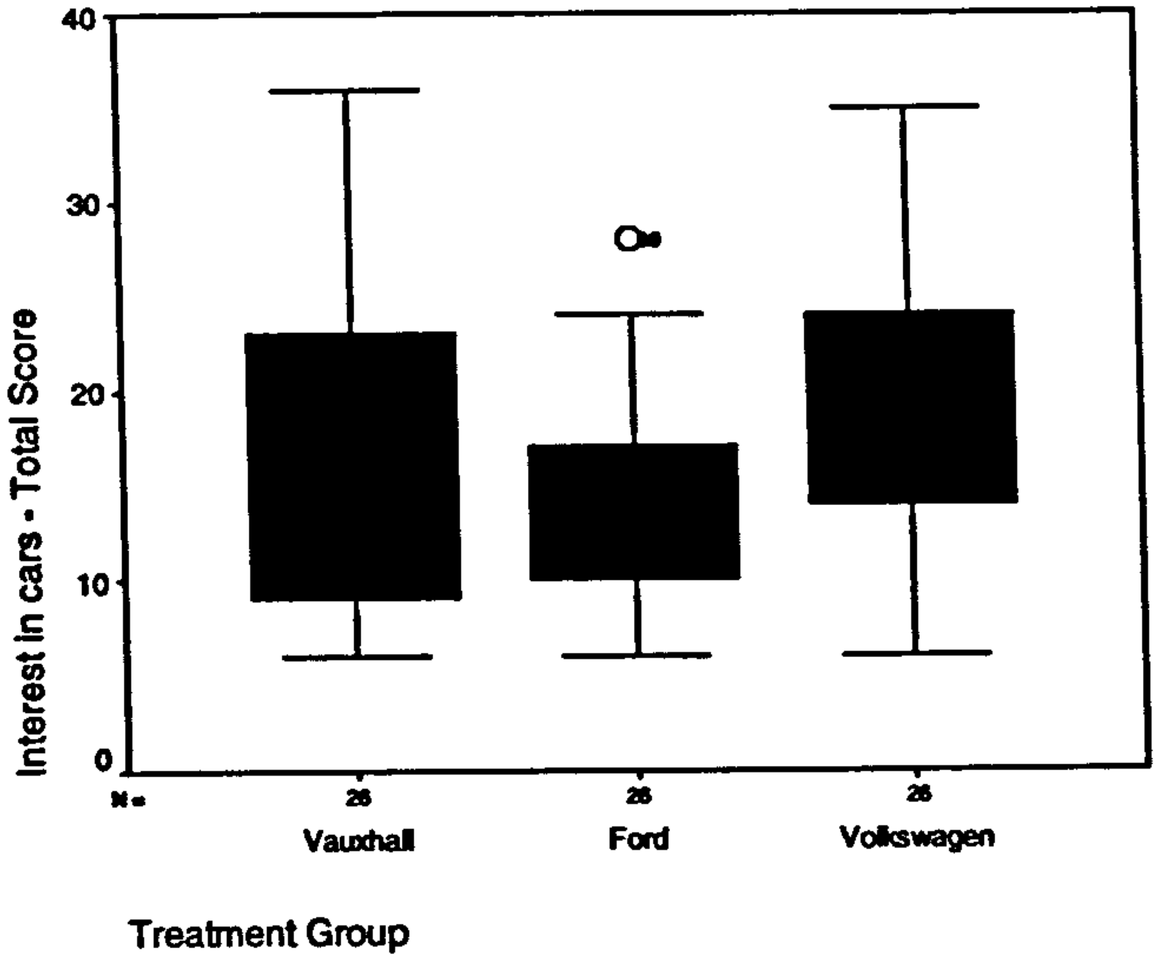
**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Interest in cars - Total Score | Vauxhall | .126 | 26 | .200* | .936 | 26 | .105 |
| | Ford | .202 | 26 | .008 | .893 | 26 | .011 |
| | Volkswagen | .102 | 26 | .200* | .976 | 26 | .768 |

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction



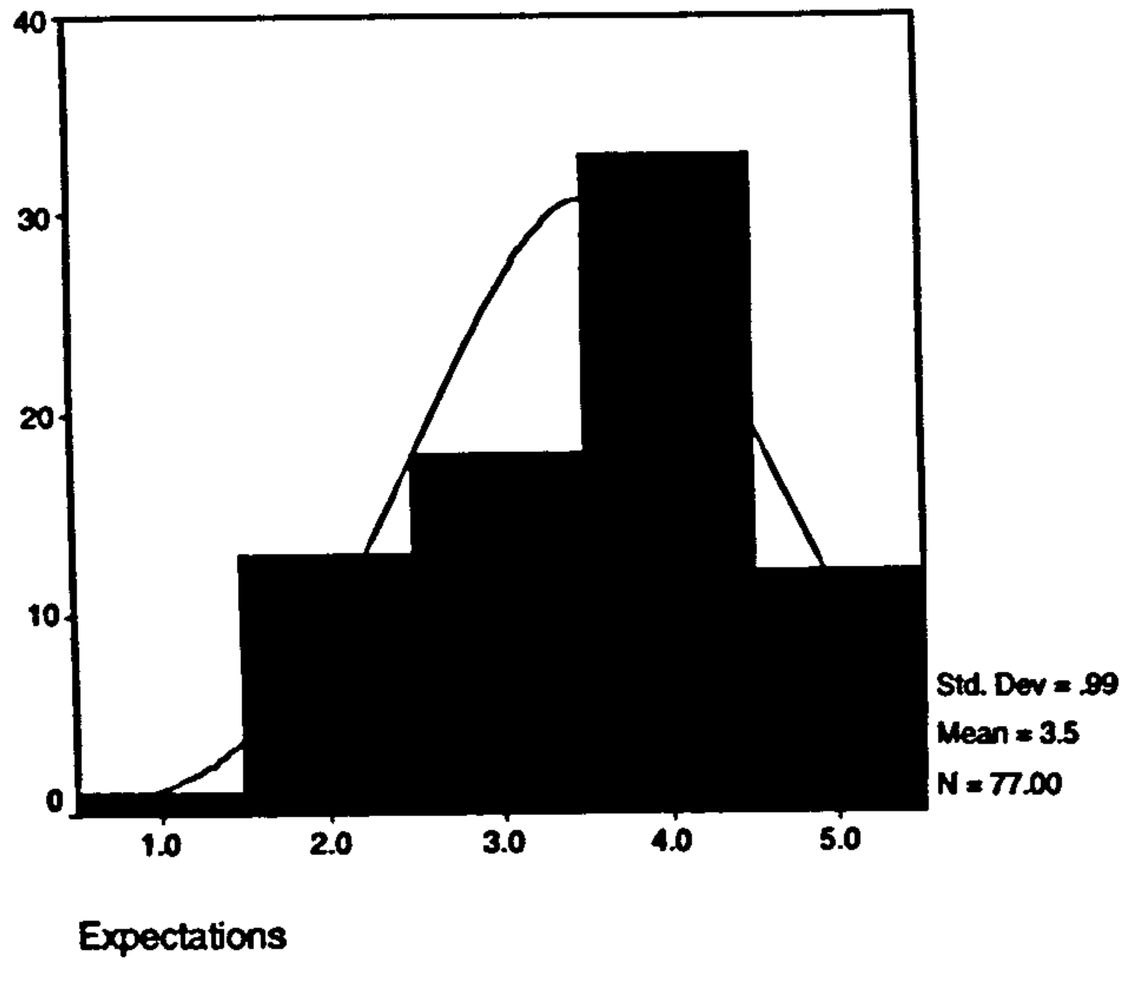
## Expectations

**Tests of Normality**

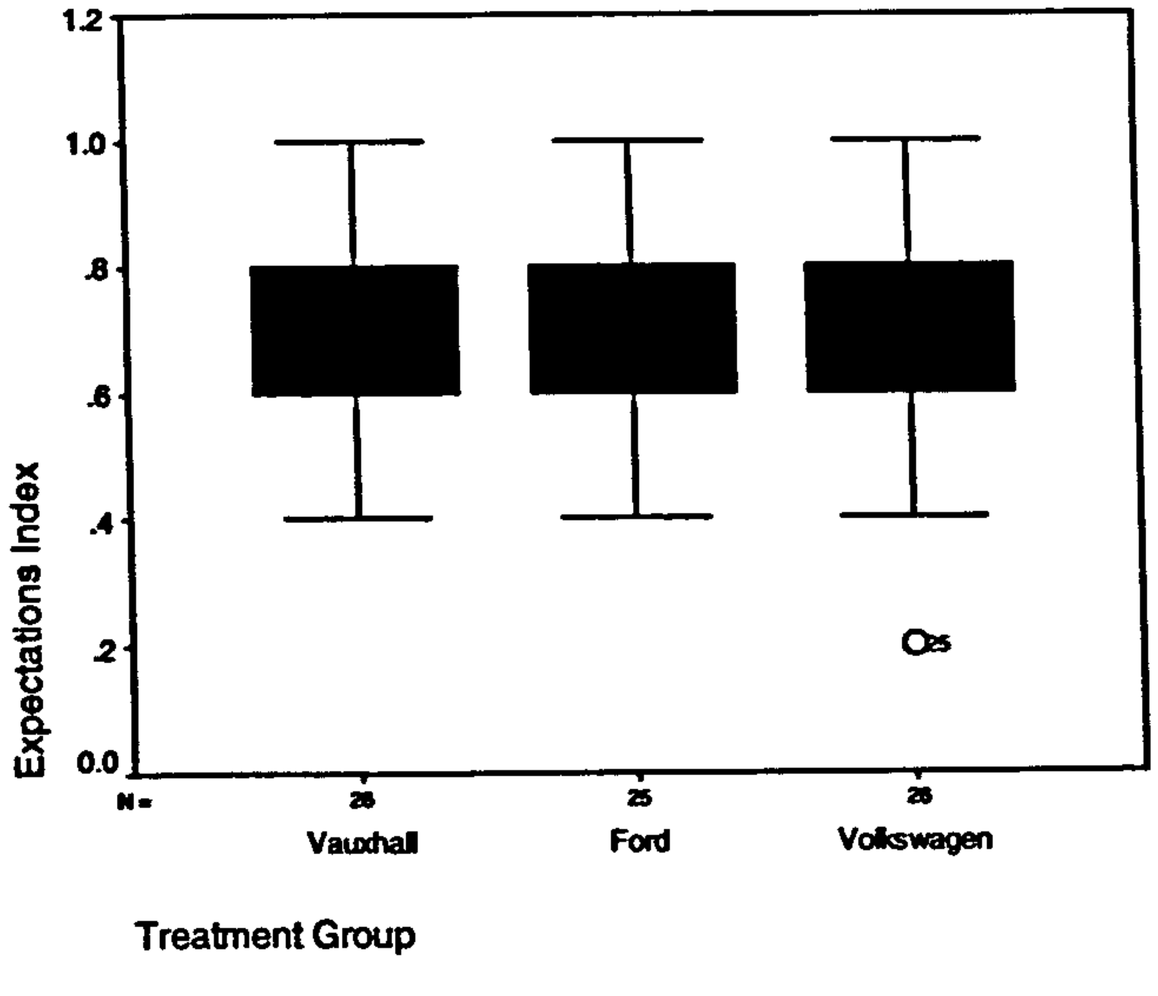
| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Expectations Index | Vauxhall | .301 | 26 | .000 | .828 | 26 | .001 |
| | Ford | .222 | 25 | .003 | .875 | 25 | .005 |
| | Volkswagen | .273 | 26 | .000 | .879 | 26 | .006 |

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



## Attitude towards the web site scores

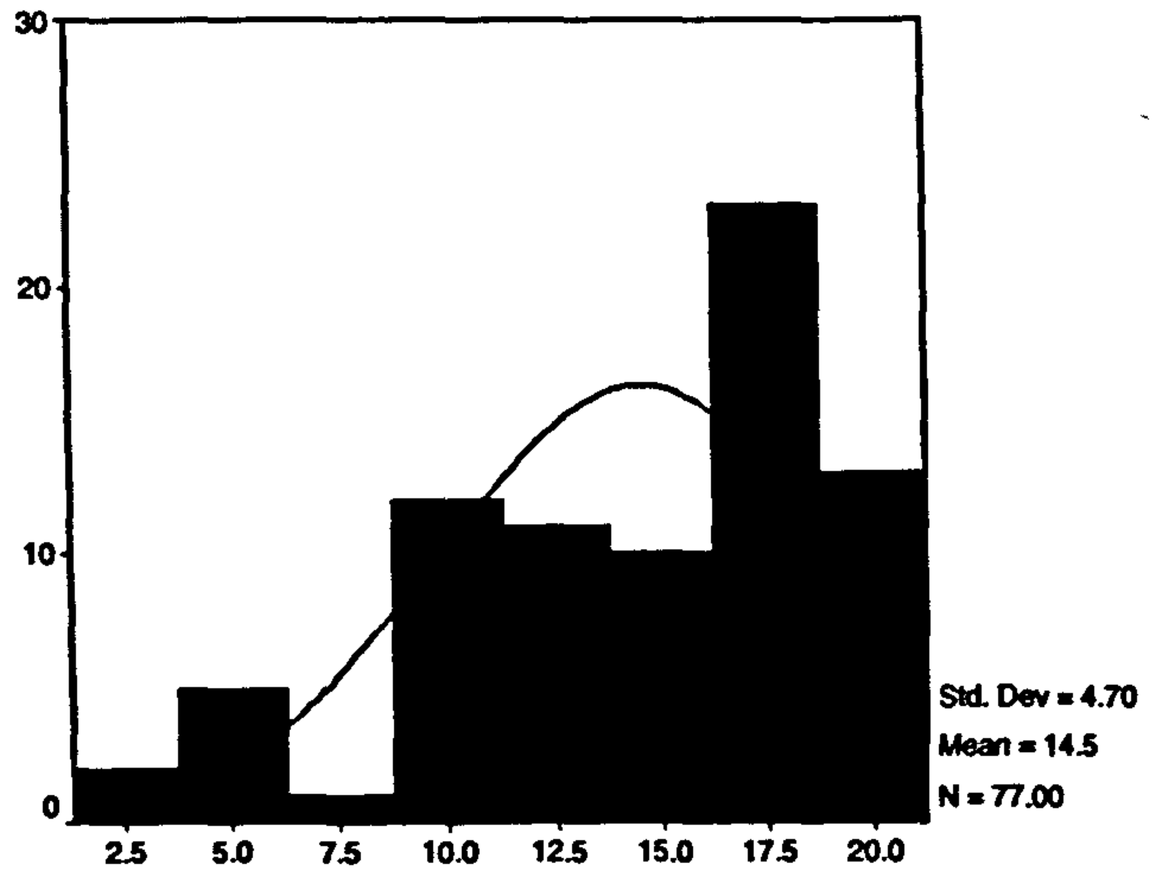
**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Attitude toward the web site Index | Vauxhall | .138 | 26 | .200* | .942 | 26 | .153 |
| | Ford | .239 | 25 | .001 | .885 | 25 | .009 |
| | Volkswagen | .235 | 26 | .001 | .855 | 26 | .002 |

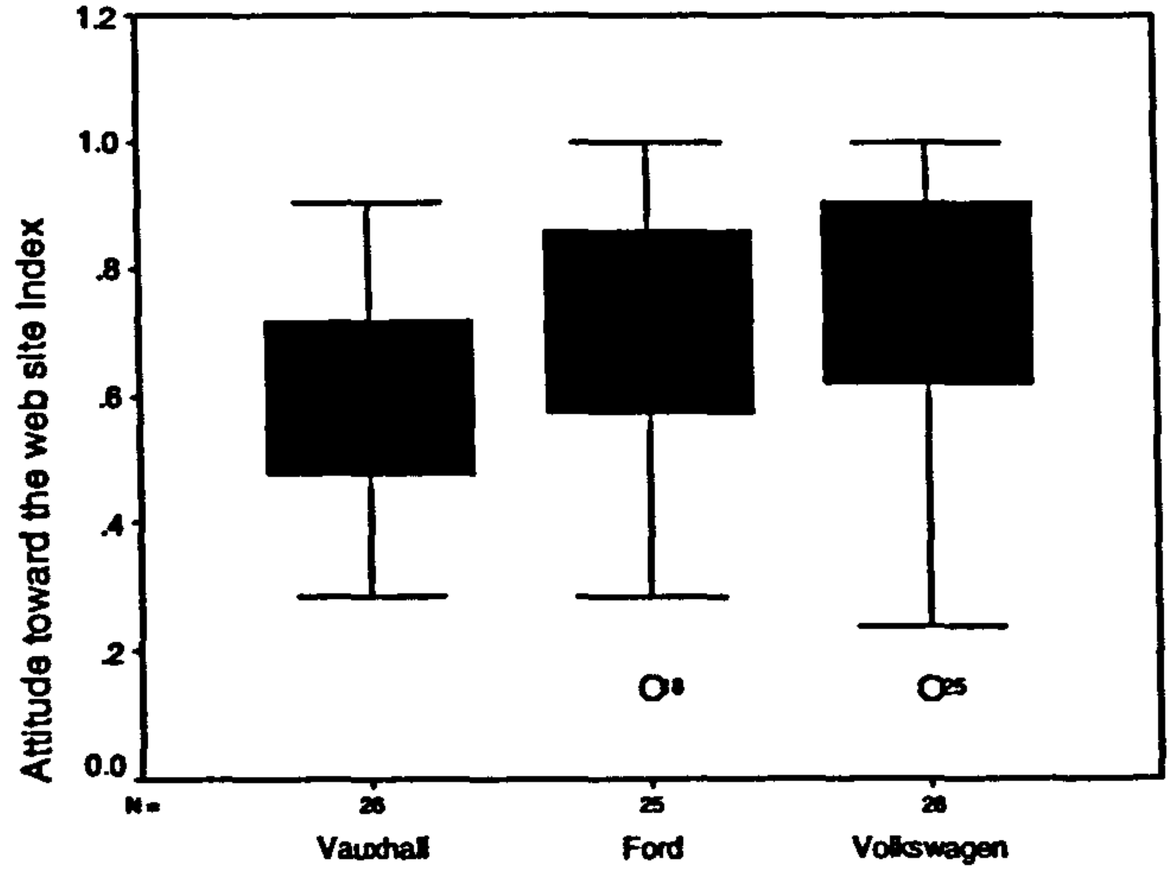
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**

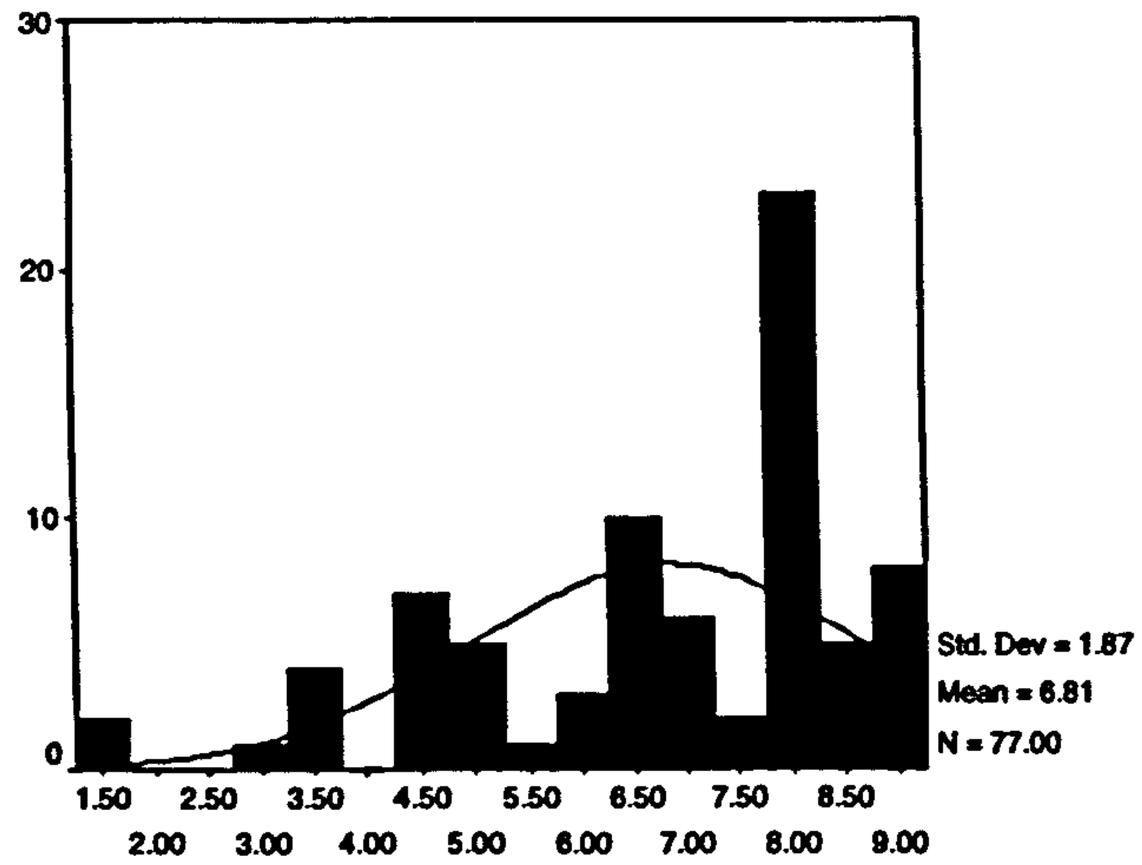


**Transformed scores for attitude towards the web site**

**Tests of Normality**

| | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Transformed attitude towards website | .175 | 77 | .000 | .901 | 77 | .000 |

a. Lilliefors Significance Correction



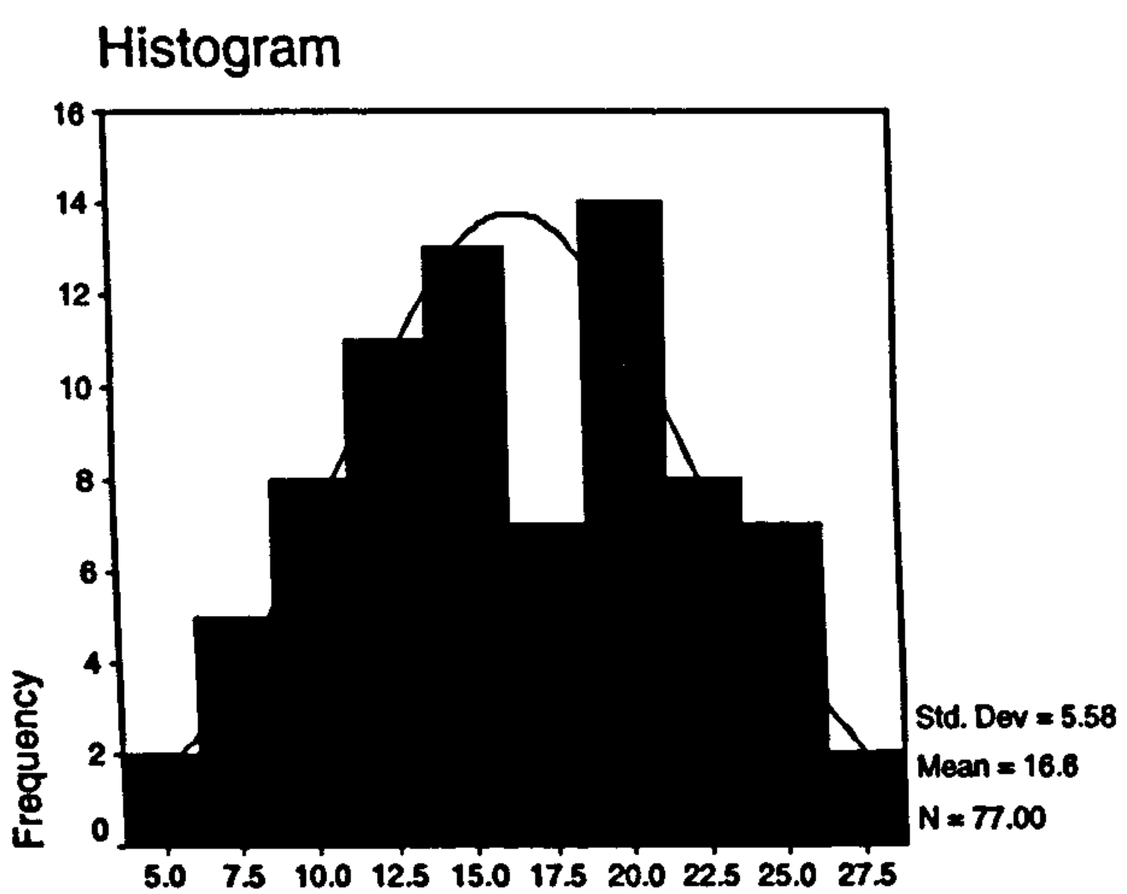
## Perceived Control scores

**Tests of Normality**

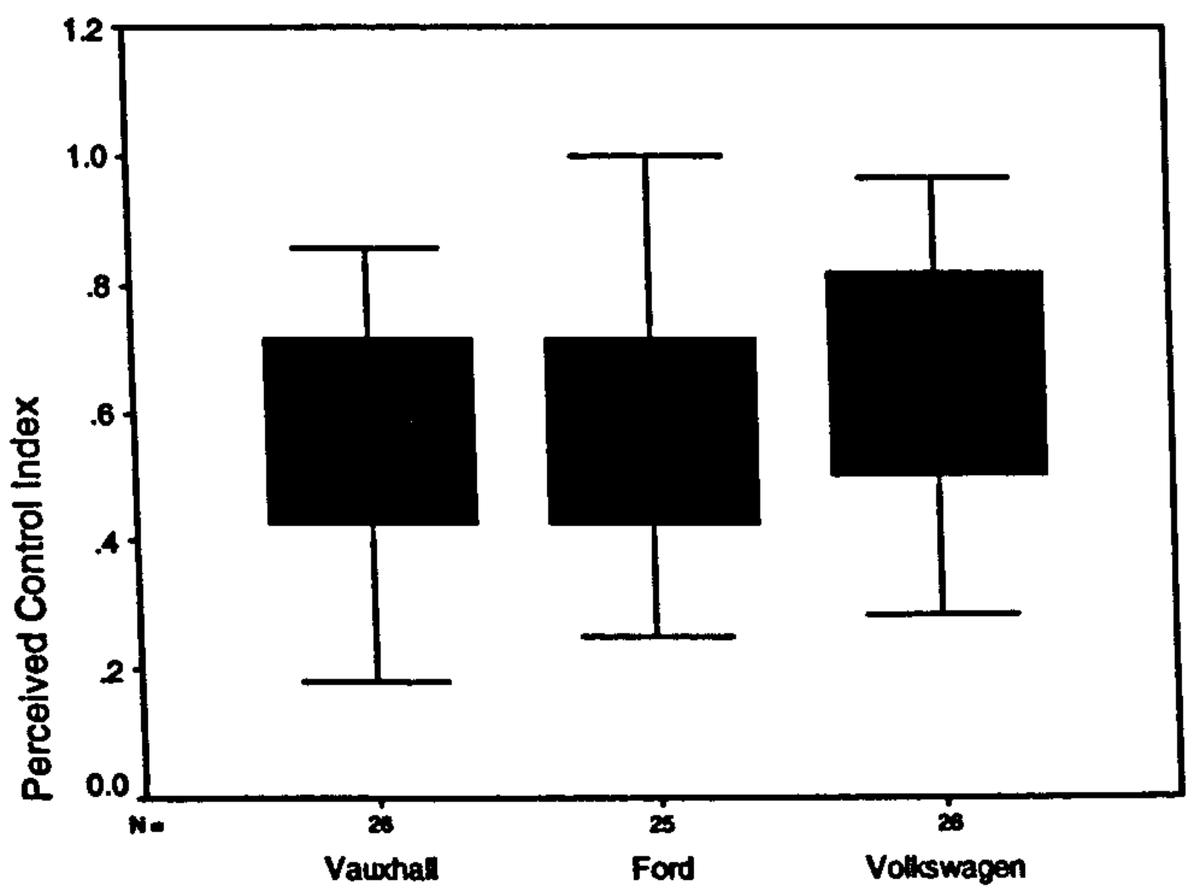
| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Perceived Control Index | Vauxhall | .116 | 26 | .200* | .960 | 26 | .394 |
| | Ford | .116 | 25 | .200* | .970 | 25 | .637 |
| | Volkswagen | .109 | 26 | .200* | .958 | 26 | .362 |

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction




**Box Plot**



## Perceived Interactivity scores

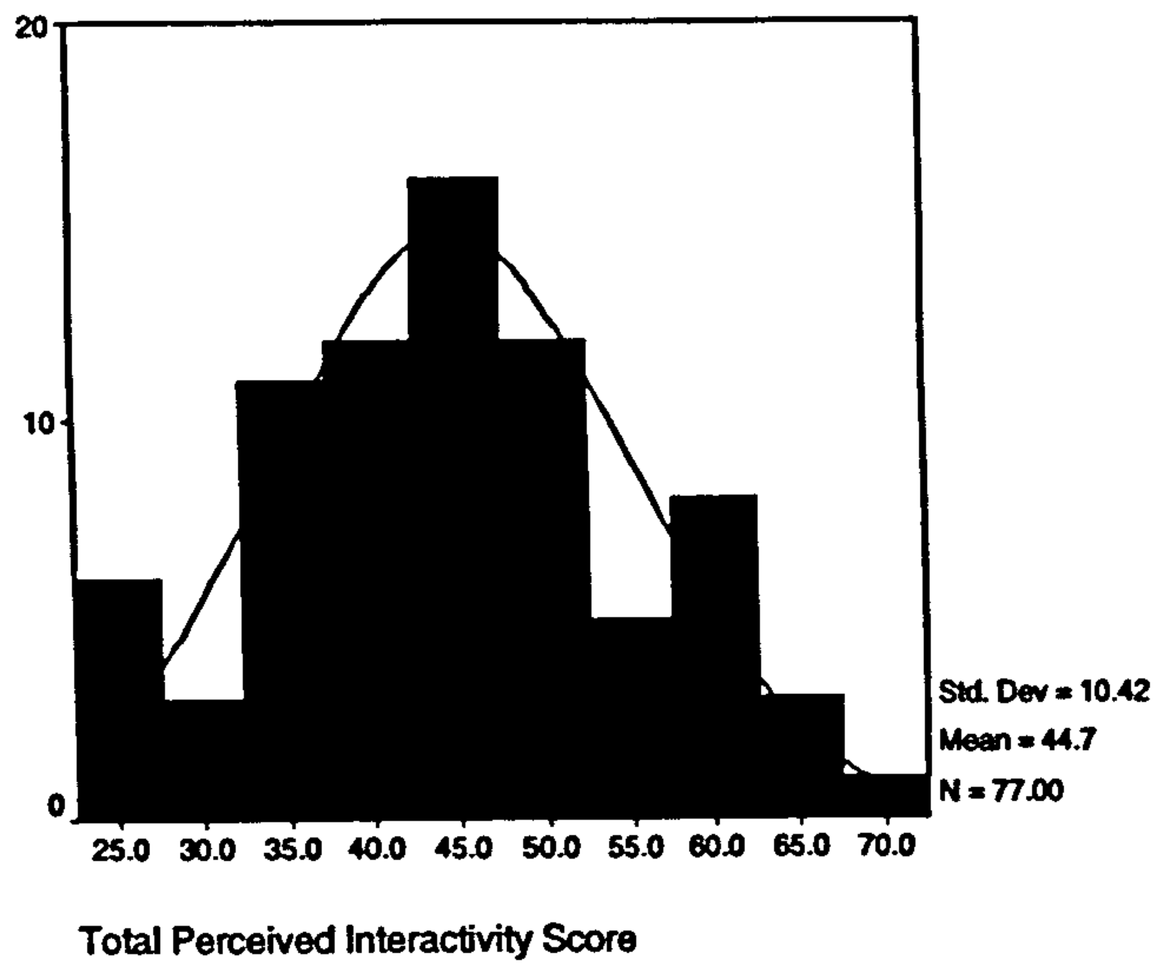
**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Perceived Interactivity Index | Vauxhall | .076 | 26 | .200* | .977 | 26 | .800 |
| | Ford | .073 | 25 | .200* | .988 | 25 | .987 |
| | Volkswagen | .120 | 26 | .200* | .952 | 26 | .254 |

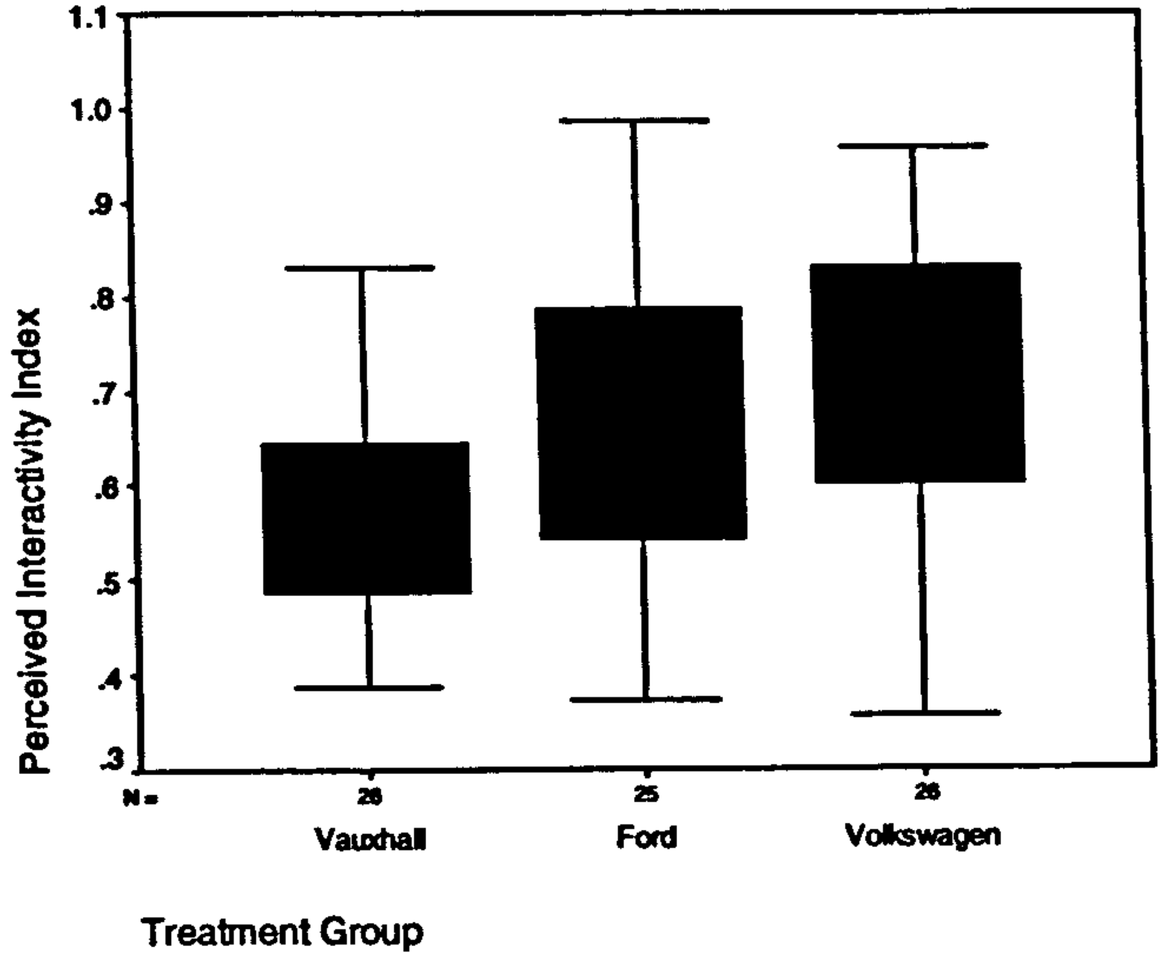
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



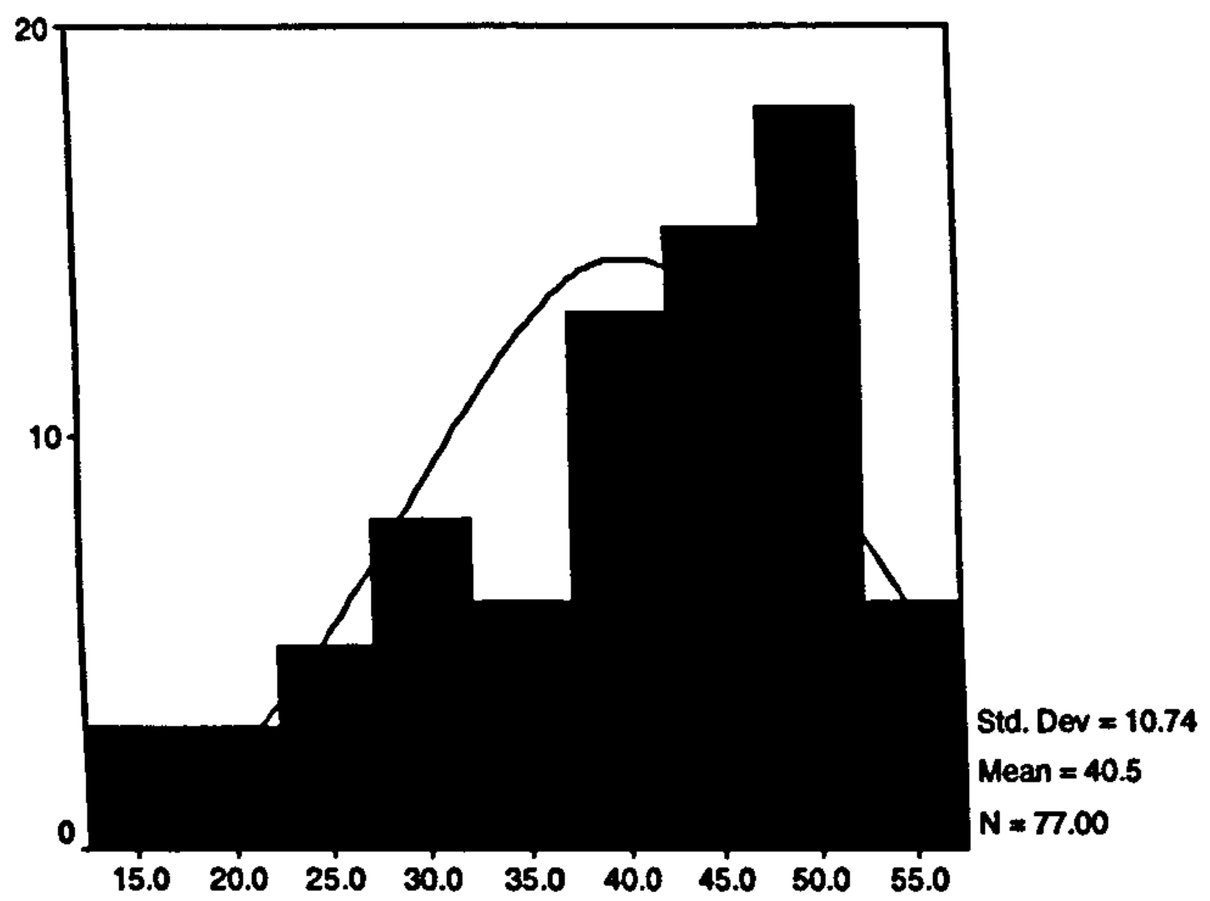
## Total Usability Value

**Tests of Normality**

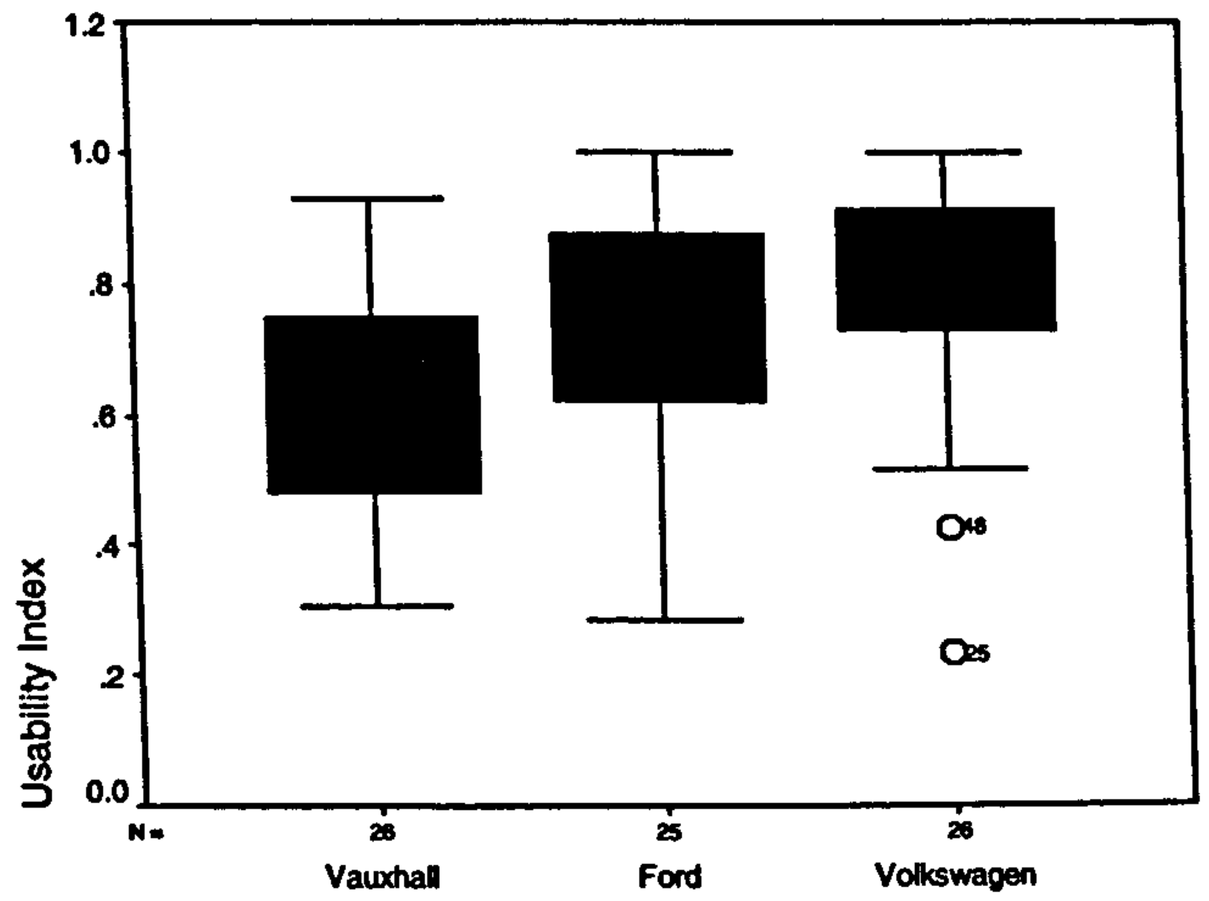
| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Usability Index | Vauxhall | .151 | 26 | .131 | .947 | 26 | .199 |
| | Ford | .145 | 25 | .186 | .940 | 25 | .147 |
| | Volkswagen | .205 | 26 | .006 | .808 | 26 | .000 |

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



## Transformed Usability scores

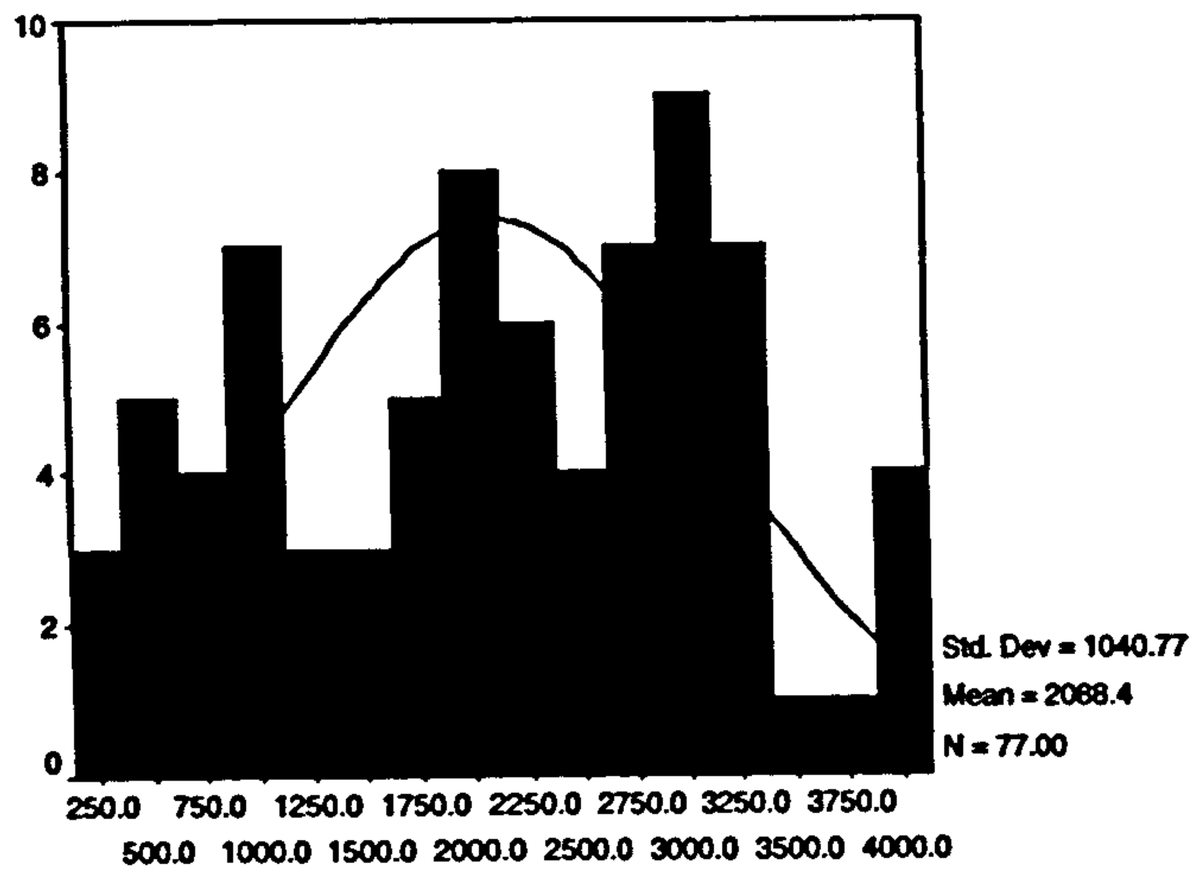
**Tests of Normality**

| | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Transformation for Usability | .088 | 77 | .200* | .966 | 77 | .039 |

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Histogram**



## Total Information Value

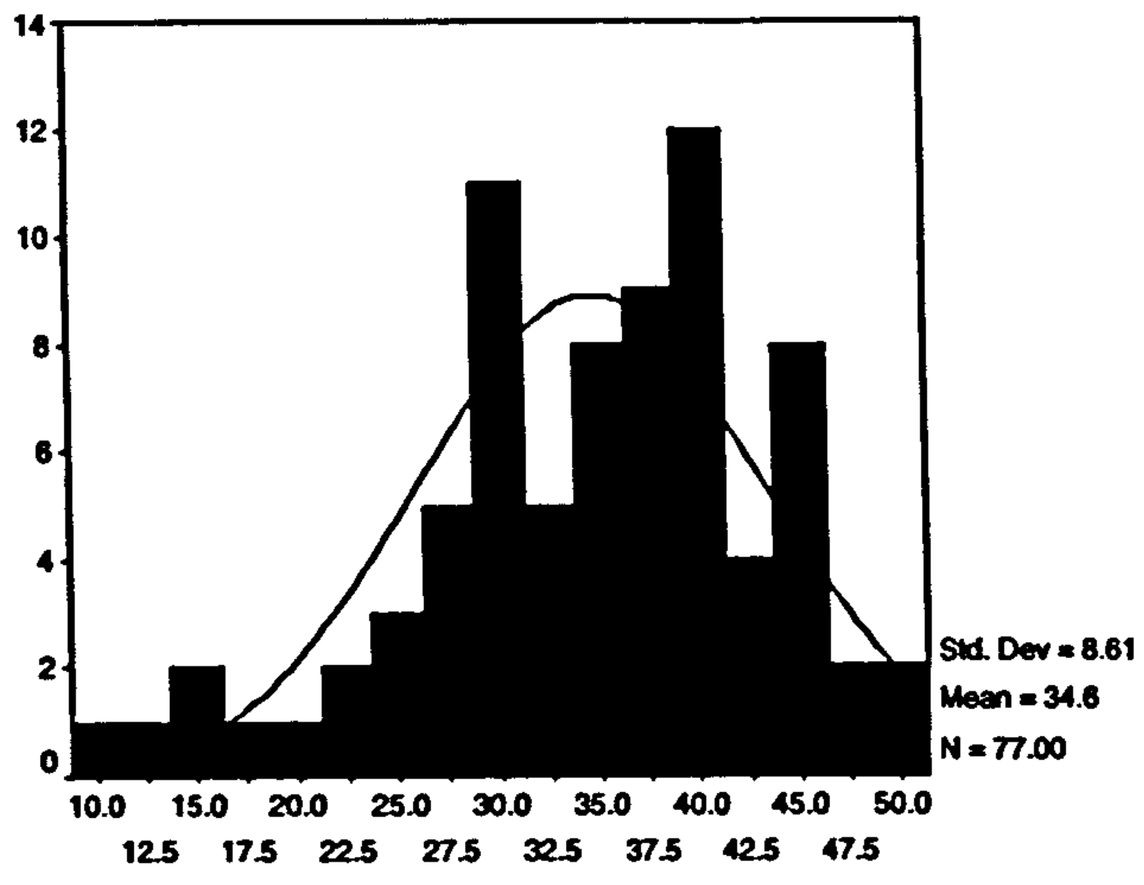
**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Information Index | Vauxhall | .140 | 26 | .200* | .948 | 26 | .206 |
| | Ford | .087 | 25 | .200* | .961 | 25 | .431 |
| | Volkswagen | .181 | 26 | .027 | .905 | 26 | .021 |

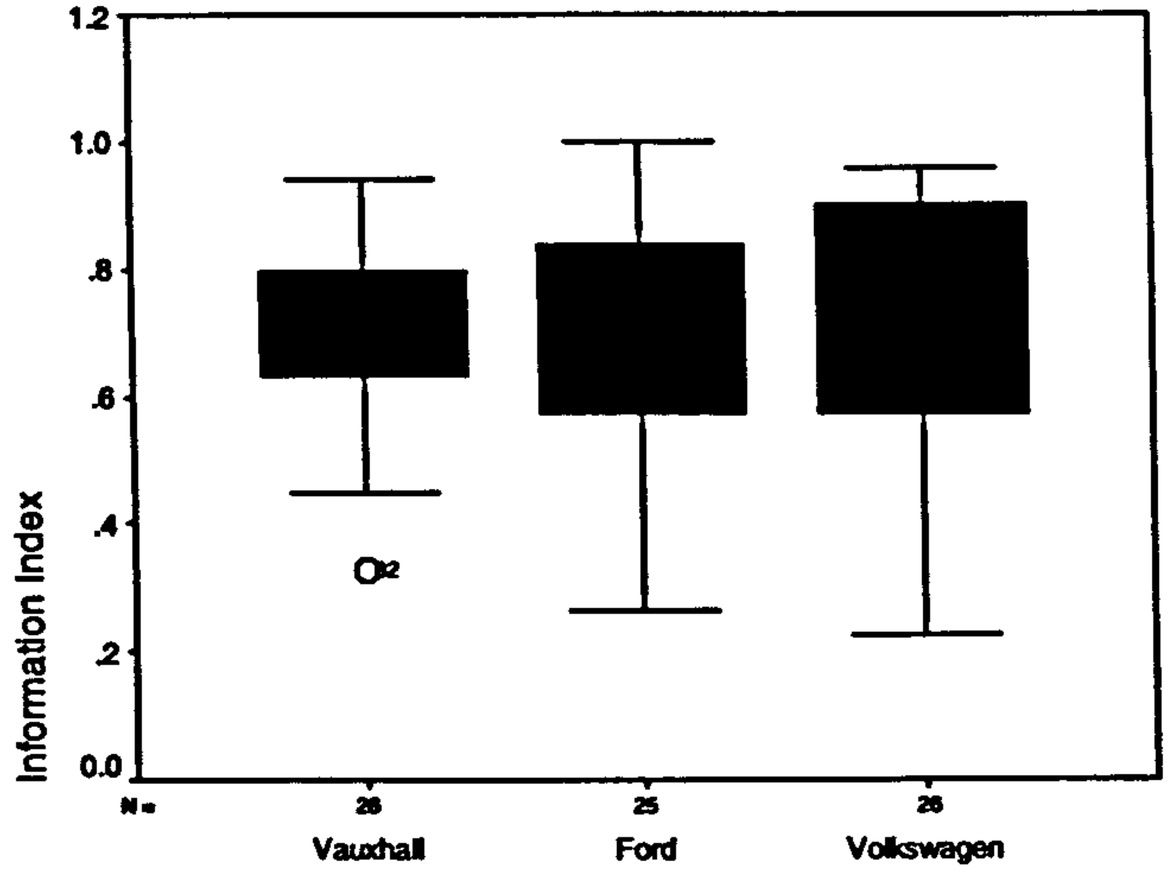
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



## Transformed Information Value scores

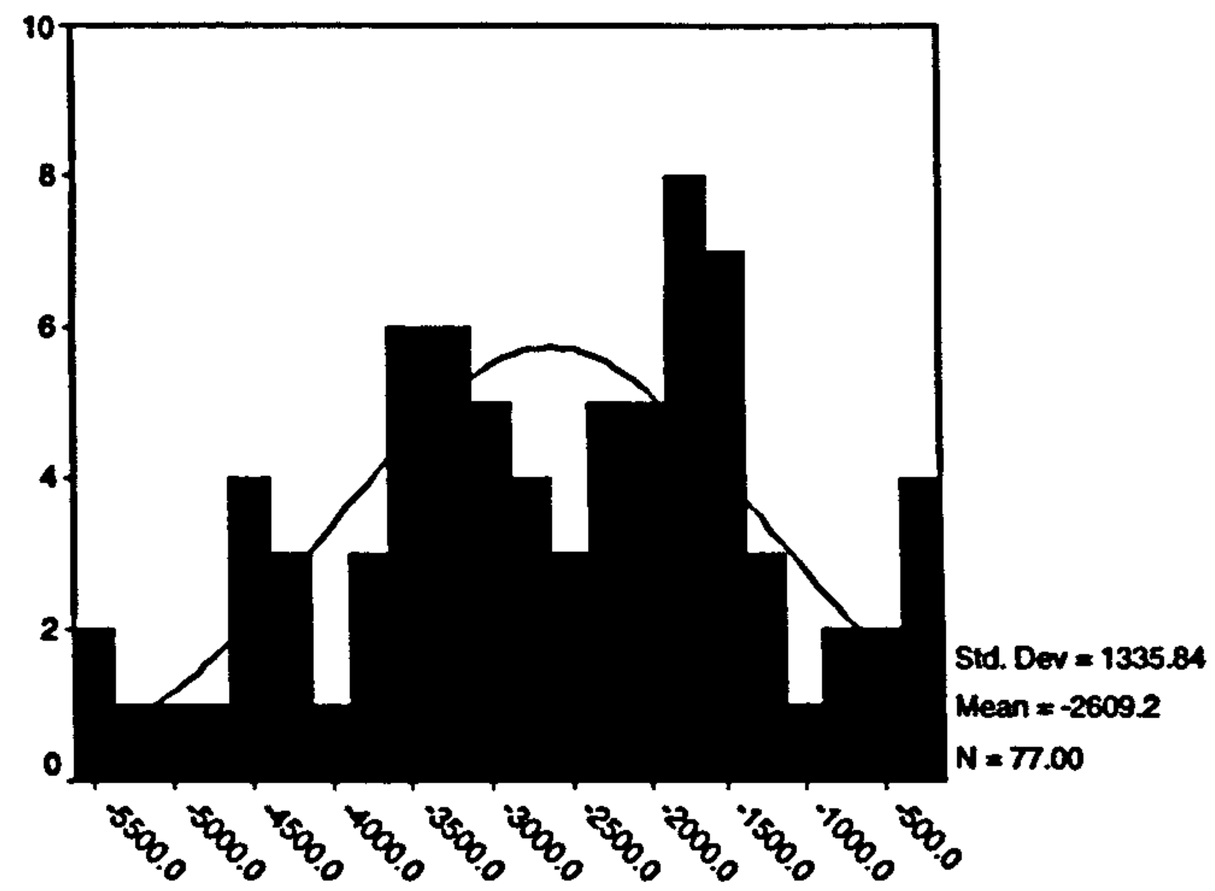
**Tests of Normality**

| | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| Transformed information value | .083 | 77 | .200* | .980 | 77 | .269 |

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

### Histogram



## Total Entertainment Value scores

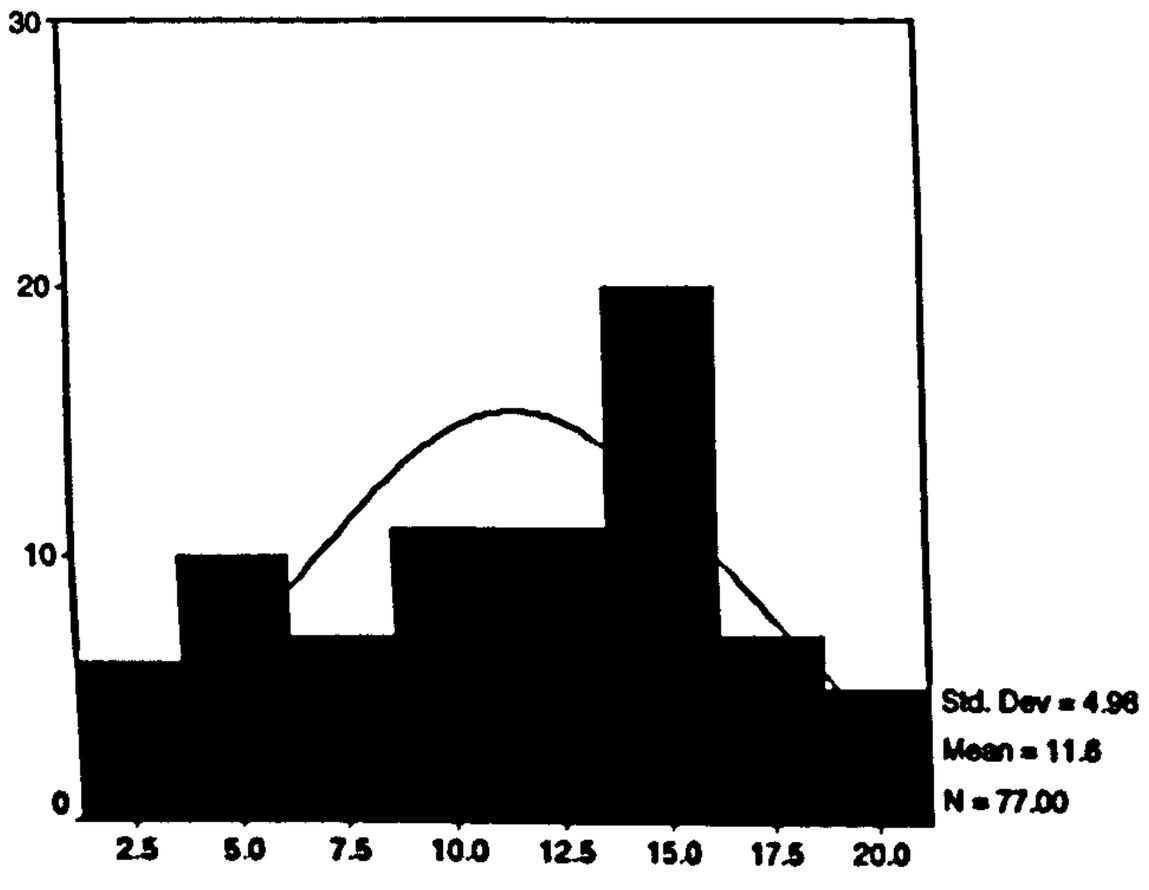
**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Entertainment Index | Vauxhall | .160 | 26 | .085 | .947 | 26 | .192 |
| | Ford | .137 | 25 | .200* | .945 | 25 | .188 |
| | Volkswagen | .183 | 26 | .025 | .924 | 26 | .056 |

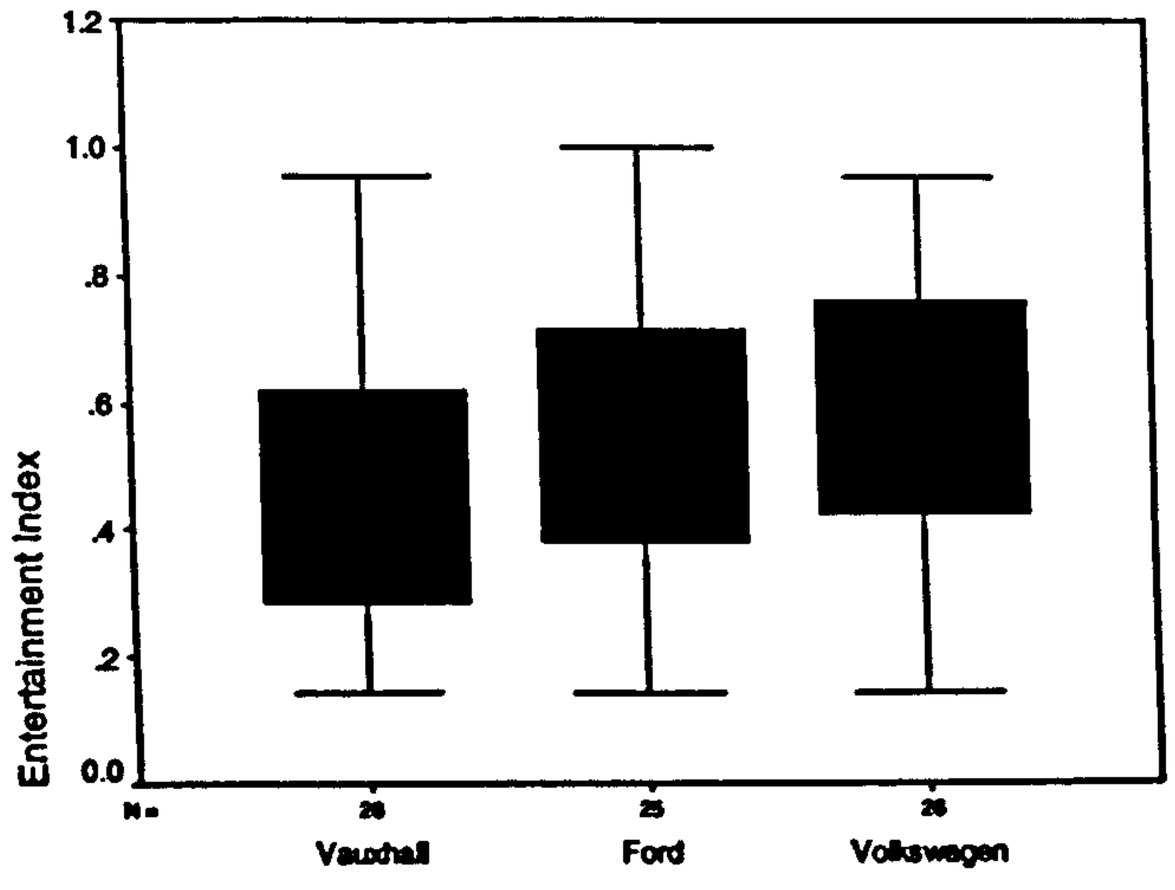
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



## Total Interaction Value scores

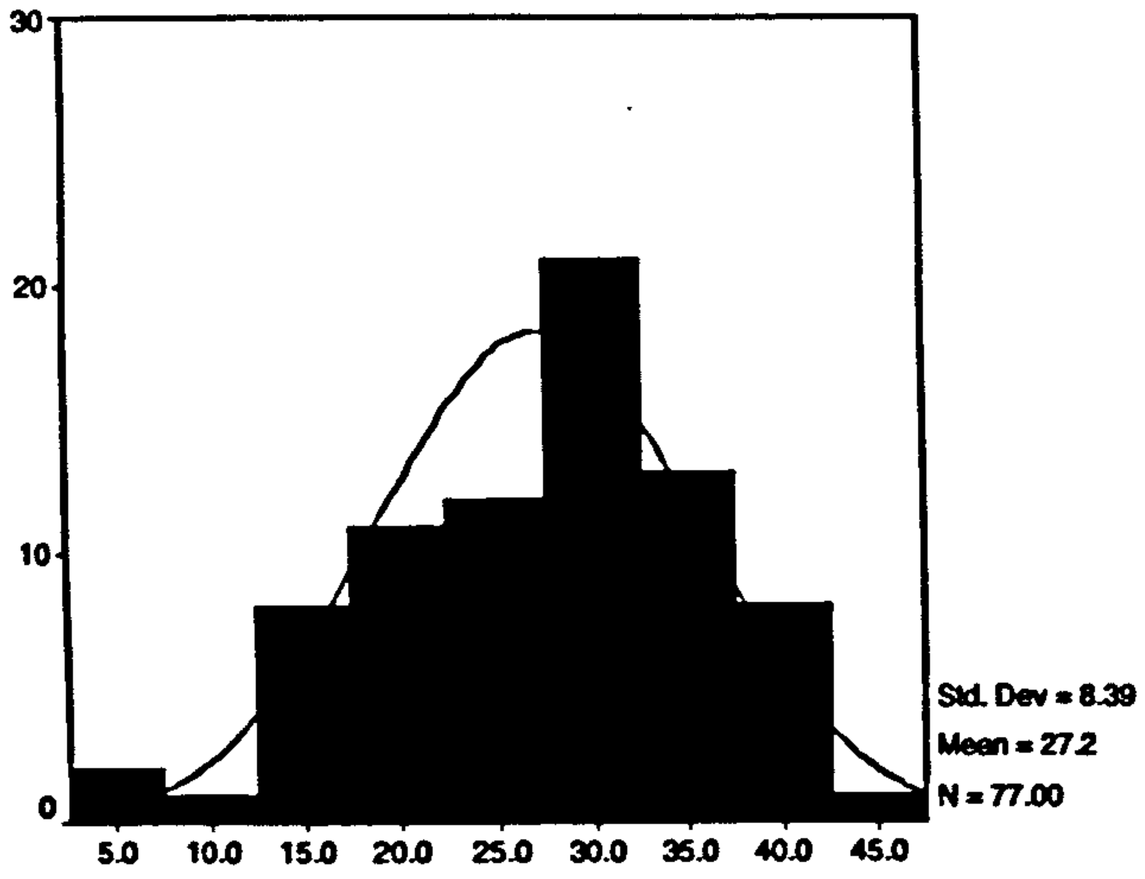
**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Interaction Index | Vauxhall | .165 | 26 | .066 | .950 | 26 | .228 |
| | Ford | .165 | 25 | .078 | .949 | 25 | .242 |
| | Volkswagen | .123 | 26 | .200* | .973 | 26 | .703 |

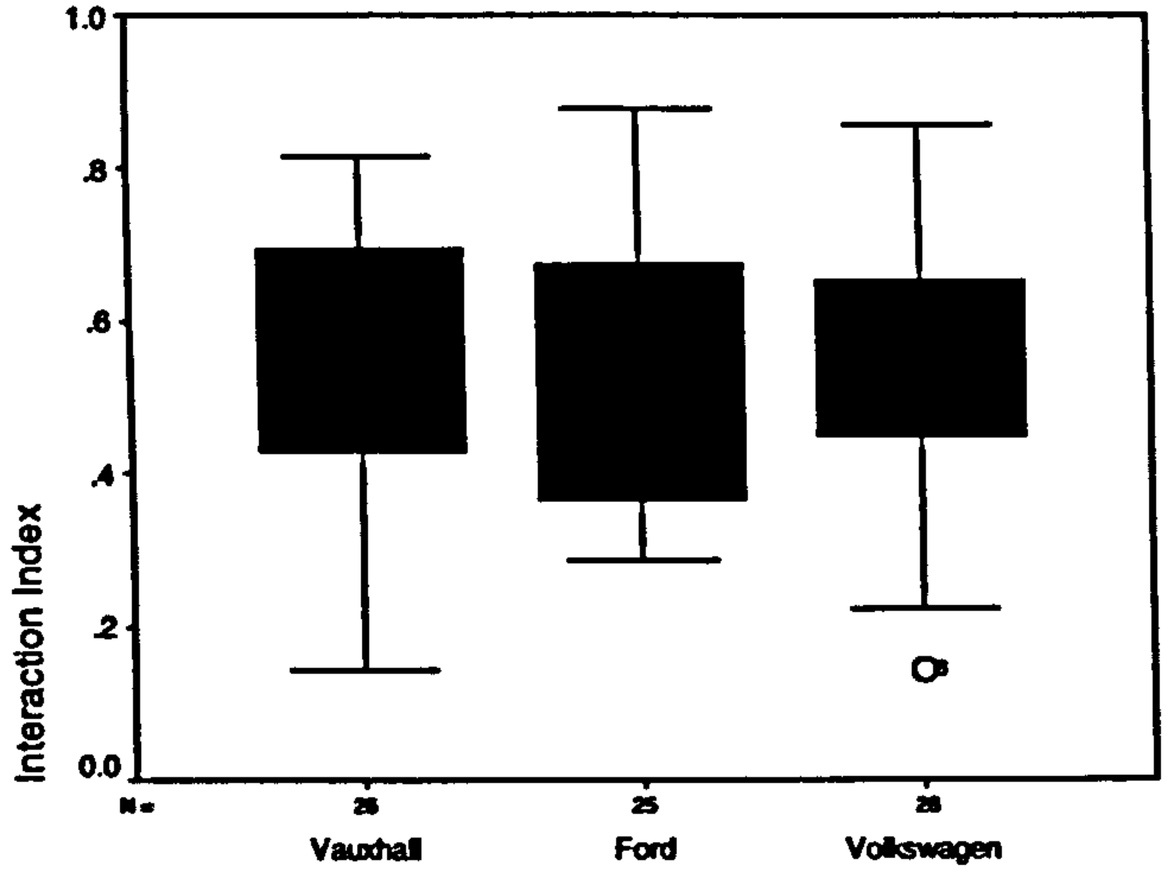
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



## Overall Perceived Value scores

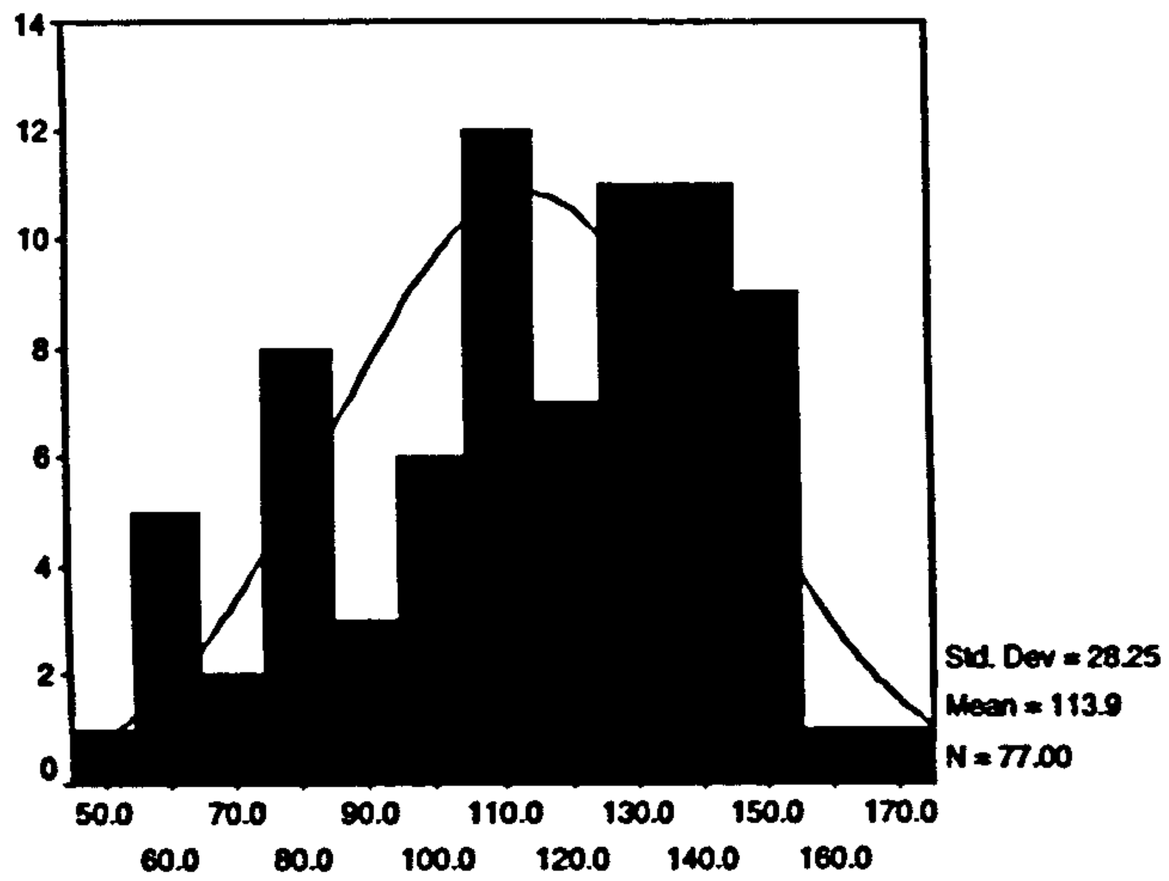
**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Overall Perceived Value Index | Vauxhall | .125 | 26 | .200* | .971 | 26 | .657 |
| | Ford | .166 | 25 | .074 | .943 | 25 | .176 |
| | Volkswagen | .141 | 26 | .199 | .908 | 26 | .024 |

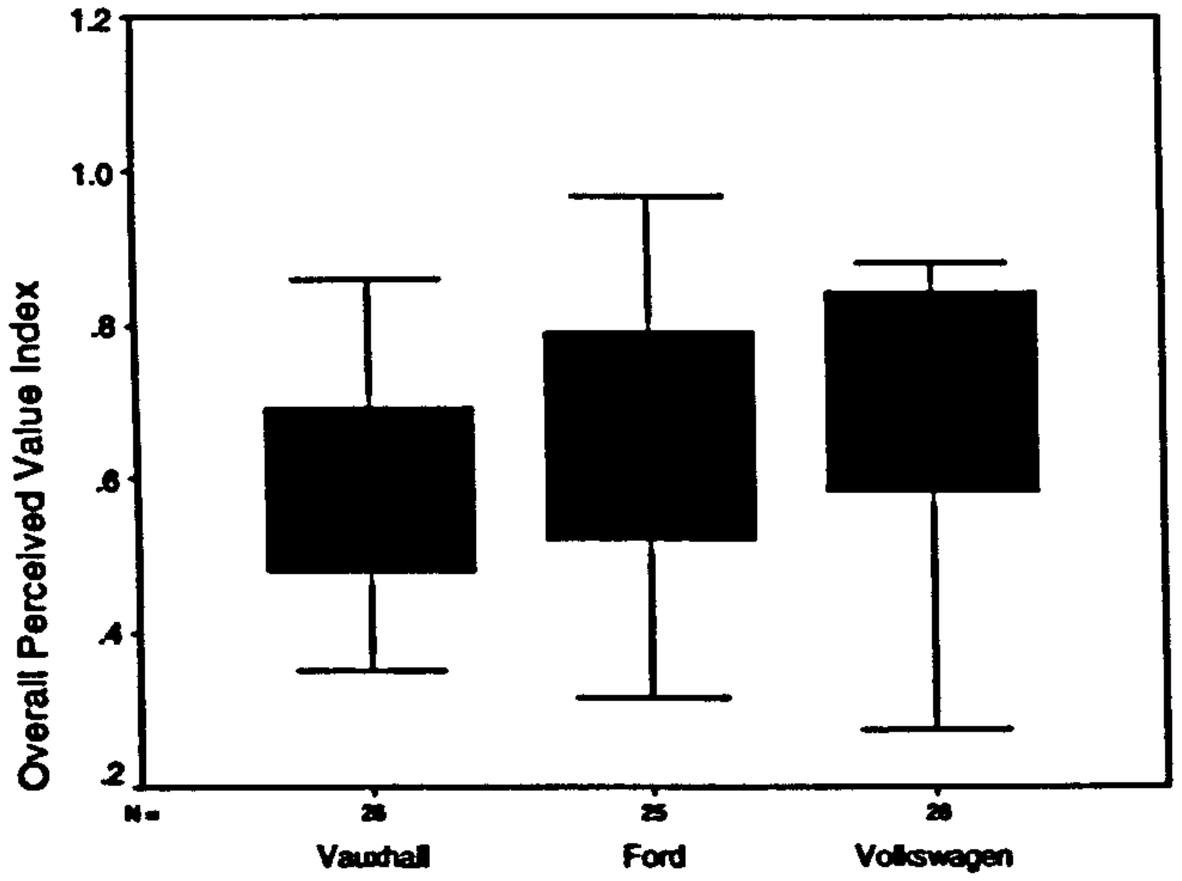
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



## Post-test Involvement scores

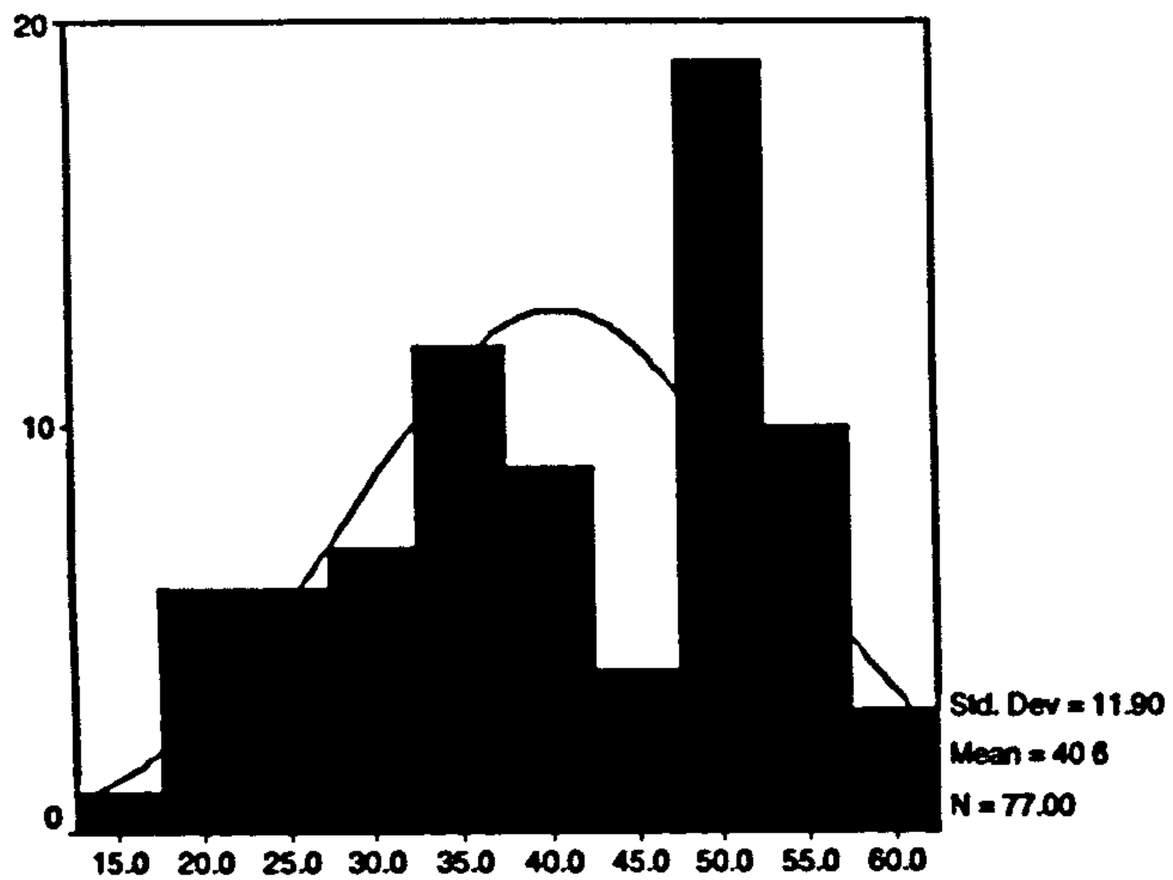
**Tests of Normality**

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Post-test Involvement Index | Vauxhall | .137 | 26 | .200* | .953 | 26 | .274 |
| | Ford | .165 | 25 | .079 | .922 | 25 | .058 |
| | Volkswagen | .198 | 26 | .010 | .902 | 26 | .018 |

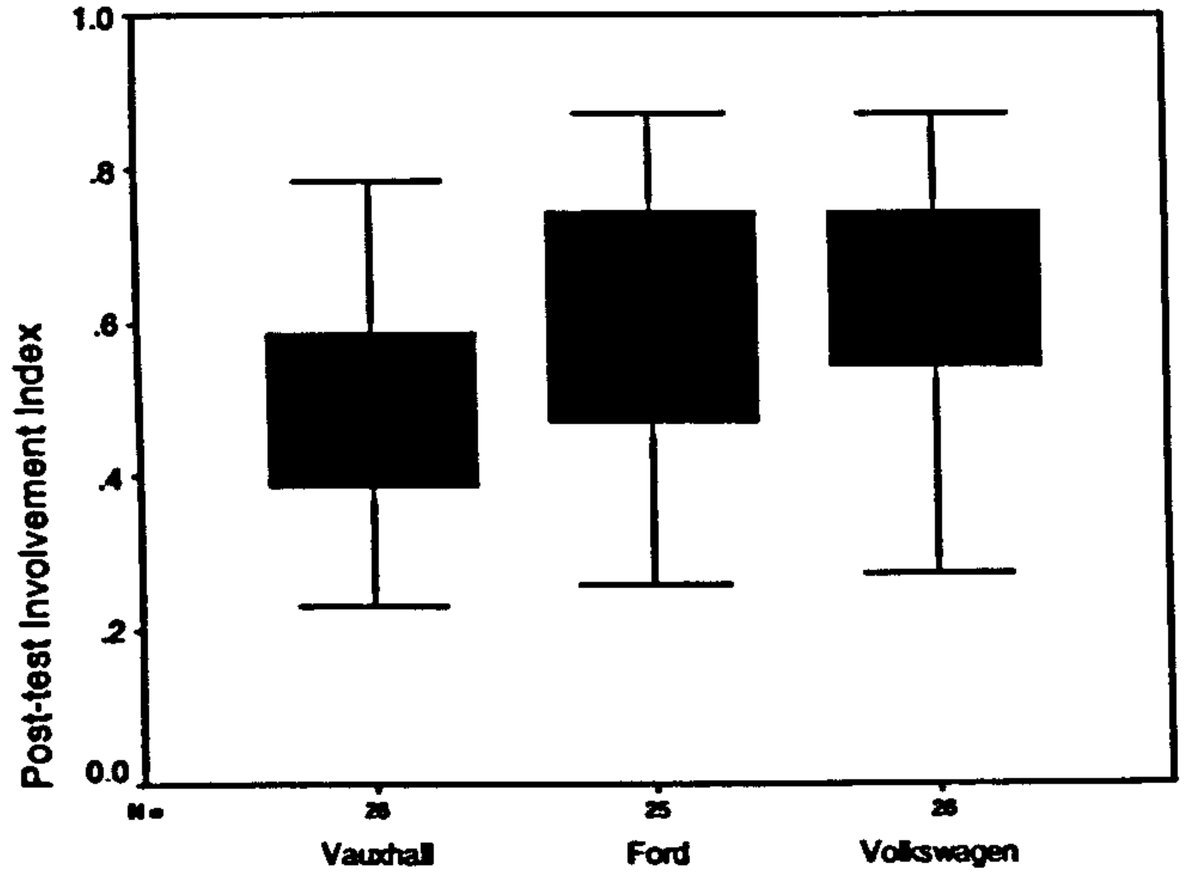
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



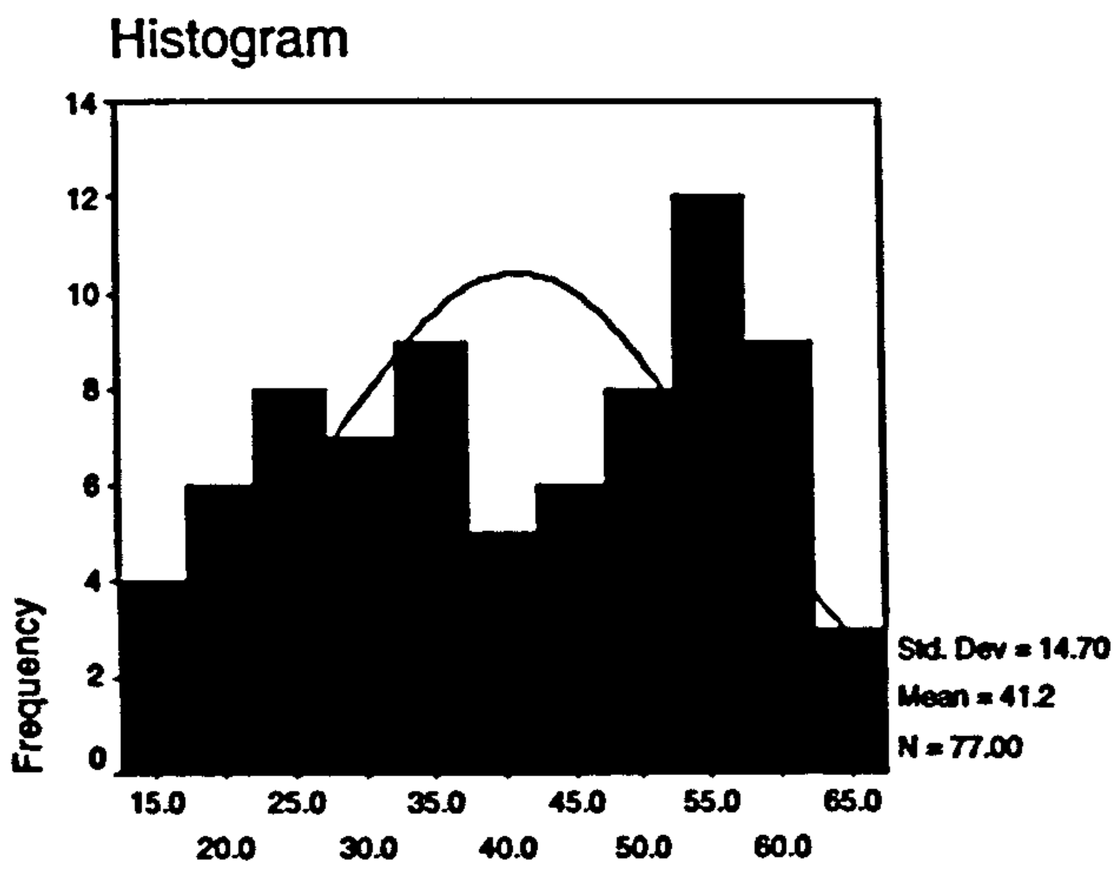
## Post-test Brand Personality scores

**Tests of Normality**

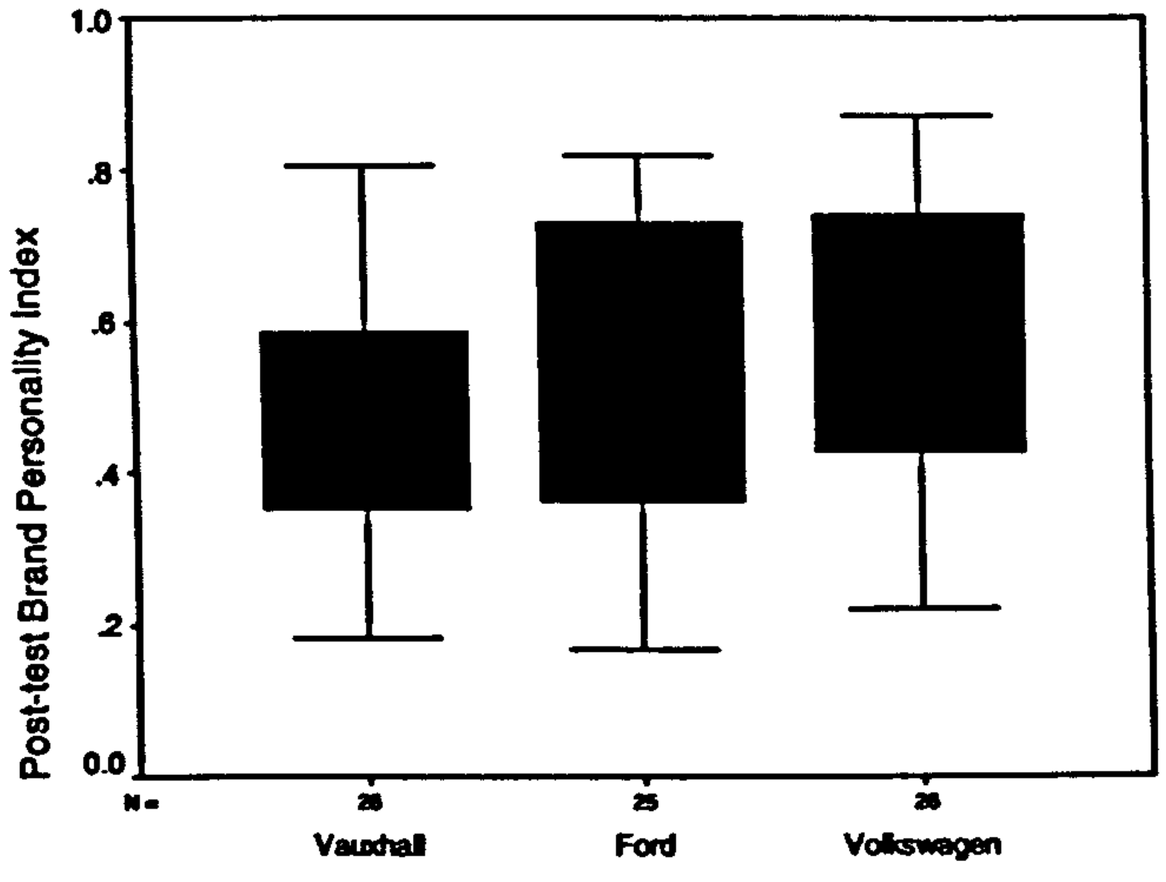
| | | Kolmogorov-Smimov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Treatment Group | Statistic | df | Sig. | Statistic | df | Sig. |
| Post-test Brand Personality Index | Vauxhall | .103 | 26 | .200* | .981 | 26 | .887 |
| | Ford | .152 | 25 | .137 | .921 | 25 | .053 |
| | Volkswagen | .177 | 26 | .034 | .904 | 26 | .019 |

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction




**Box Plot**



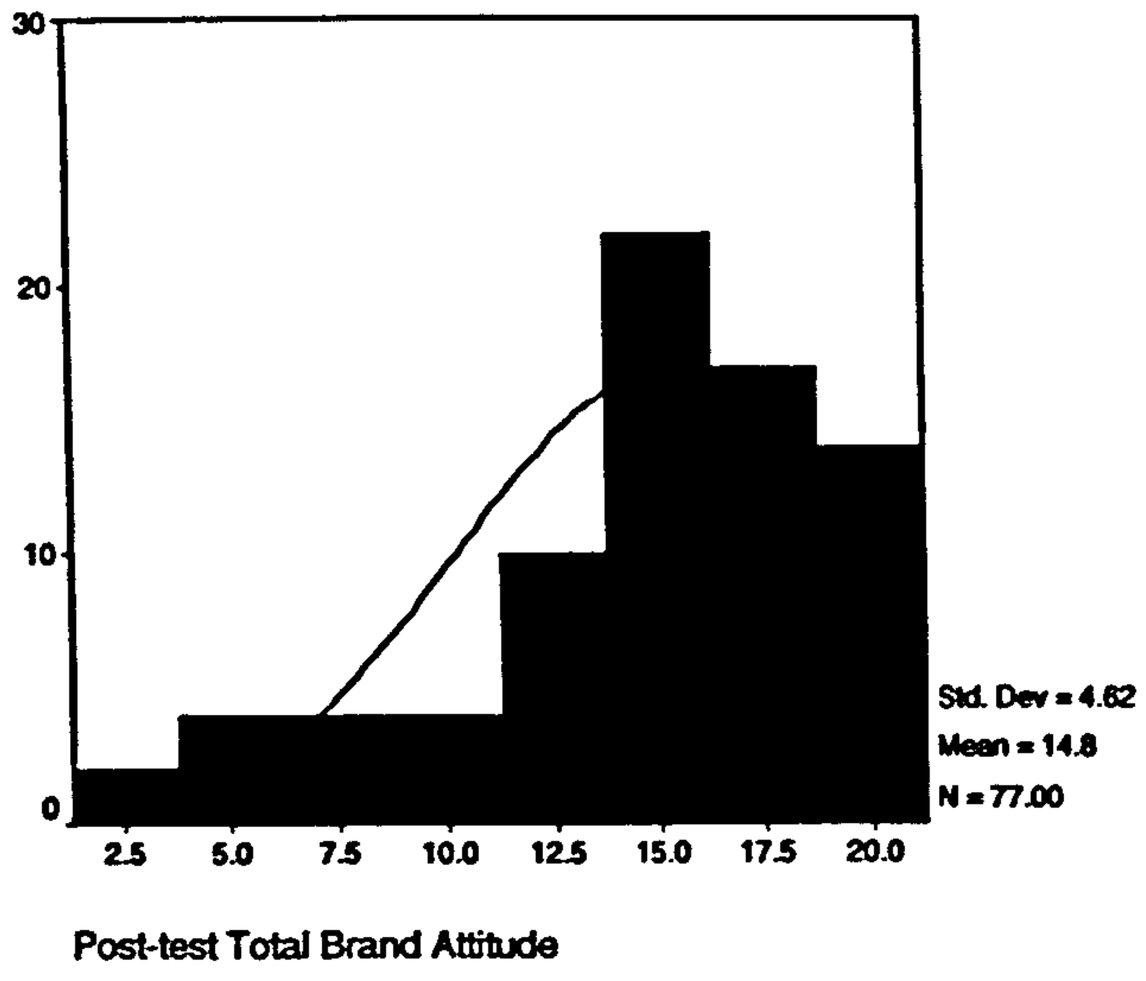
## Post-test Total Brand Attitude scores

**Tests of Normality**

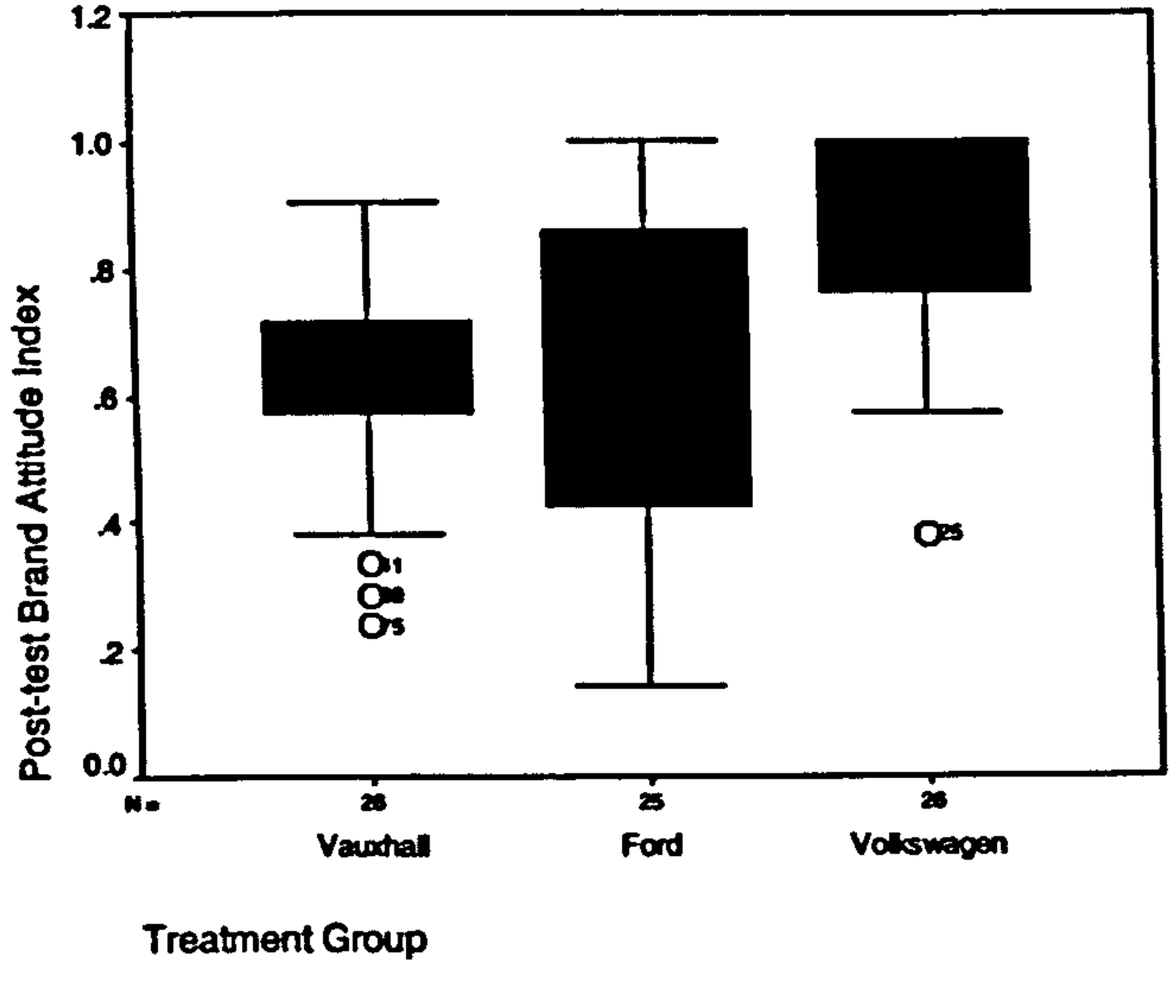
| | Treatment Group | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | | Statistic | df | Sig. | Statistic | df | Sig. |
| Post-test Brand Attitude Index | Vauxhall | .242 | 26 | .000 | .885 | 26 | .007 |
| | Ford | .175 | 25 | .046 | .910 | 25 | .030 |
| | Volkswagen | .169 | 26 | .054 | .898 | 26 | .014 |

a. Lilliefors Significance Correction

**Histogram**




**Box Plot**



# Appendix 3c – DEMOGRAPHIC AND CONTROL VARIABLES

## Kruskal-Wallis Tests for all demographic variables

**Test Statistics[a,b]**

| | Chi-Square | df | Asymp. Sig. |
|---|---|---|---|
| GENDER | 1.481 | 2 | .477 |
| AGE | .150 | 2 | .928 |
| EDUCATE | .947 | 2 | .623 |
| STATUS | 5.965 | 2 | .051 |
| LICENSE | 5.225 | 2 | .073 |
| OWNER | .489 | 2 | .783 |
| WEB_EXP | 2.339 | 2 | .310 |
| WEB_FREQ | 3.903 | 2 | .142 |
| WEB_HOUR | 6.493 | 2 | .039 |

a. Kruskal Wallis Test

b. Grouping Variable: Treatment Group

Treatment groups did not differ in terms of demographic variables, except for web usage hours.

## Mann-Whitney U tests for 'web usage hours'

Vauxhall versus Ford

**Test Statistics[a]**

| | WEB_HOUR |
|---|---|
| Mann-Whitney U | 241.500 |
| Wilcoxon W | 592.500 |
| Z | -1.811 |
| Asymp. Sig. (2-tailed) | .070 |

a. Grouping Variable: Treatment Group

Vauxhall versus Volkswagen

**Test Statistics[a]**

| | WEB_HOUR |
|---|---|
| Mann-Whitney U | 209.000 |
| Wilcoxon W | 560.000 |
| Z | -2.407 |
| Asymp. Sig. (2-tailed) | .016 |

a. Grouping Variable: Treatment Group

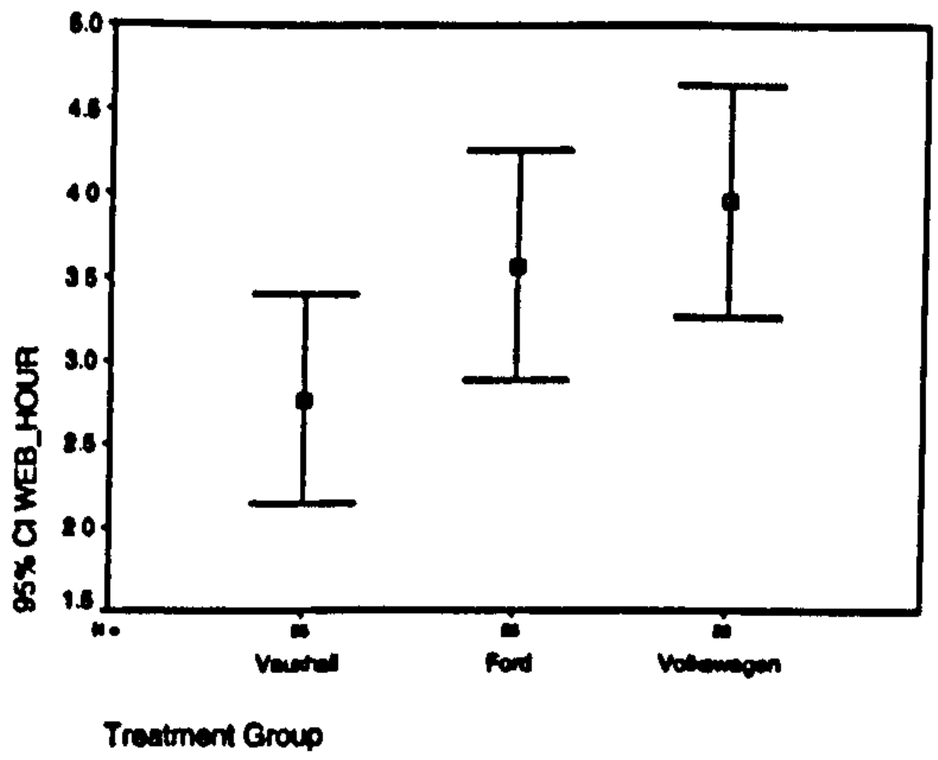
Ford versus Volkswagen

**Test Statistics[a]**

| | WEB_HOUR |
|---|---|
| Mann-Whitney U | 291.500 |
| Wilcoxon W | 642.500 |
| Z | -.642 |
| Asymp. Sig. (2-tailed) | .521 |

a. Grouping Variable: Treatment Group

Error bar chart for 95% confidence intervals for web usage hours



## One-way ANOVA for 'interest in cars' by treatment groups

**ANOVA**

Interest in cars - Total Score

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 292.333 | 2 | 146.167 | 2.593 | .082 |
| Within Groups | 4228.385 | 75 | 56.378 | | |
| Total | 4520.718 | 77 | | | |

## Paired Samples t-test for pre-test and post-test measures of attitude toward the brand scores.

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Pre-test Total Brand Attitude | 14.56 | 77 | 4.500 | .513 |
| | Post-test Total Brand Attitude | 14.84 | 77 | 4.620 | .526 |

**Paired Samples Correlations**

| | | N | Correlation | Sig. |
|---|---|---|---|---|
| Pair 1 | Pre-test Total Brand Attitude & Post-test Total Brand Attitude | 77 | .709 | .000 |

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | Pre-test Total Brand Attitude - Post-test Total Brand Attitude | -.29 | 3.483 | .397 | -1.08 | .50 | -.720 | 76 | .474 |

## One-way ANOVA for attitude to brand by treatment groups

**ANOVA**

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Pre-test Total Brand Attitude | Between Groups | 219.092 | 2 | 109.546 | 6.004 | .004 |
| | Within Groups | 1350.129 | 74 | 18.245 | | |
| | Total | 1569.221 | 76 | | | |
| Post-test Total Brand Attitude | Between Groups | 256.316 | 2 | 128.158 | 6.891 | .002 |
| | Within Groups | 1357.618 | 73 | 18.598 | | |
| | Total | 1613.934 | 75 | | | |

## Error bar chart for 95% confidence intervals for pre-test and post-test measures of attitude to brand scores